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Technical Men Play Important Part at Record Refiners' Convention

By Paul Truesdell

N. P. N. STAFF WRITER

KANSAS CITY, March 5

COURAGE and faith for the future, but tempered with the prudent conviction that 1925 will be largely what they make it, marked the spirit of the largest gathering of western refiners that ever has come together for an annual meeting.

The registration at the convention of the Western Petroleum Refiners' Association, which met here March 3, 4 and 5, totalled around 375 and there were a good many visitors who did not register. President F. A. Pielsticker of the association, who was re-elected for another year, together with all the other officers, stated at the breakfast meeting this morning that the registration exceeded by at least 100 the registration at any previous annual convention.

One reason undoubtedly for the great increase in attendance over previous meetings was that this year, for the first time in the history of the association, the operating refinery men, the men who spend their working hours in refinery yards and who are immediately responsible for keeping the plants operating at last came into their own.

One day, the second day of the meeting, was devoted to the discussion of technical refinery problems that are close to the heart of every man in the operating end of the business. This was at the earnest request of the manufacturers' committee of the association which has been increasing in activity and importance through the past year. They demanded recognition and they got it.

For Actual Refinery Operators

Where previous meetings have been mostly attended by the higher executives of the refining companies, and chiefly by the sales executives at that, this was a meeting as well for the men who actually make the products that the sales departments must sell.

As a result, there was a large attendance of young men who in other years have not been much of a factor in the convention registrations. They were sent to the meeting by their chiefs, who mostly came along themselves as well, to meet the bright young men of other refining companies, learn what they were doing, hear the papers delivered by experts on various phases of refining problems and broaden their vision thereby of their own problems.

There was a spirit of co-operation apparent among the technical men that has been slow in growing. This is due not to the fact that the engineers and chemists are any more willing now to get together and talk over their problems than they have been in past years; but it marks a general change in the policy of the companies that employ them. Their companies now are letting them talk, confident that, in return for what information their men pass along, they will get compensating information in return.

And they do. There are so many problems in the refining industry that everybody in it recognizes that nobody knows it all. The technical men of one company may have been particularly successful in vanquishing some particular vexing problem. They meet the men of another company who have specialized in licking some other problem and they exchange their ideas. Everybody is the gainer.

Meetings Well Attended

From the opening day of the convention it was evident that those who came, whatever end of the business they belong to, had come to listen and to learn and to help the game along. At the opening meeting in the afternoon of the first day, when by no means all of the visitors had arrived, 115 men were counted in the audience.

And the attendance at the technical sessions on the next day was probably close to three times that number. Attendance at all the meetings was unusually good. But the temper of the visitors was not so serious that it prevented them from enjoying thoroughly the entertainment provided by the Kansas City Oil men's club of which J. L. Walsh, sales manager of the Continental Oil Co. is president, and kindred interests.

The second night of the convention, the Kansas City Oil men entertained the ladies who accompanied their men folks to the convention with a theater party, while the men were guests at a dinner with a cabaret and boxing bouts at the Kansas City athletic club.

The first official event on the program was a meeting of the traffic managers on Tuesday morning, with F. N. Davis of the Orient Petroleum Co., presiding in the absence of D. W. Moffet, vice president of Cosden & Co., who was to have presided. The first general meeting on the program was Tuesday afternoon, presided over by President F. A. Pielsticker, head of the refining division of the Skelly Oil Co.

Officers Make Reports

Here the president made his annual report, followed by that of Fayette B. Dow, Washington counsel of the association. Mr. Pielsticker, after relating the developments in the work of the association the past year, declared that prospects for the coming year are good but he emphasized that the fate of the refiners this year, in a business way, is in their own hands and earnestly warned them against unwarranted expansion of operations based on false optimism.

He pointed out the benefits which the refiners gained while the figures on production, shipments and stocks of refined products were being gathered under the direction of Howard Bennette, and stated that the refiners in the light of these

figures were able to conduct their operations on a sounder economic basis than when they had to work blindly with no information as to the amount of material being made, shipped and run to storage. This work of the association, however, was stopped because of an adverse decision of the attorney general.

The activities of the association, Mr. Pielsticker said, have been greatly extended under the direction of Secretary Bennette, and one of the greatest problems during the past year has been the spread, state by state, of the tax on gasoline and the inclination in various states and cities to put the government into the gasoline business. He stated that the refiners association has joined forces with state and national jobbers' association in bringing lawsuits to enjoin the use of taxpayers' money to ruin the business of the legitimate oil companies by setting the state or city government up as their competitors at public expense.

He praised the work that has been done and is being done by the manufacturers' committee, headed by C. L. Henderson of the Vickers Petroleum Co., as chairman, citing especially three phases of the committee's work, that on coefficient of expansion tables; household burner problems and the distillation range situation created by the removal of cotton from the thermometer bulb in the official testing method of the American Society for Testing Materials.

Further details of the western refiners' convention will be found beginning on page 33. Dr. Mandelbaum's paper will be published next week.

Mr. Pielsticker stated that the manufacturers' committee will have representatives prepared to go to Washington to appear before the Federal Specifications Board at its meeting April 4 to voice the protest of the western refiners against a testing method and a set of specifications that forces them to lose one to two per cent of the gasoline they might get from their crude.

Mr. Dow, in his report, asserted that he regards the formation by the president of the oil conservation board as offering a great opportunity to the industry. Pointing out that there have been 12 separate investigations staged by the Federal Trade Commission or by congressional committees during the past eight years, he stated that the present survey being made by the conservation board is the first one where the investigators showed any disposition to go for the facts concerning the industry to the industry itself.

Dr. Work, chairman of the conservation board, Mr. Dow said, has told him on several occasions that he expects the information to come from the industry itself and that he expects also that any plans for remedying waste or economic mistakes that may be found, shall also come from the industry itself. There is no intention of any legislation looking toward government control, Dr. Work said.

Here is a chance, says Mr. Dow, for the industry to bring to the attention of an apparently fair minded governmental agency, some of the strides it has made of its own initiative toward greater efficiency and more economical operation.

Following the reports of the president and the Washington counsel, the meet-

Read Lawrence Smith's Stories from Cheyenne

on the Teapot Dome Trial

THIS Wyoming town of 15,000, seat of the Federal District court, is now the news center of the country. There is being staged the government's attempts to take back the operating title to Teapot Dome field from Sinclair's Mammoth Oil Co., largely on the basis that fraud entered into the granting of the lease. National figures in the oil industry and politics are present as witnesses.

LAWRENCE E. SMITH, National Petroleum News staff writer, is in Cheyenne to write the story of that trial. He was the first oil writer to visit Teapot Dome after the lease was let to the Mammoth Oil Co. and his was the first article describing the field itself. That article, appearing in National Petroleum News, was widely copied by metropolitan newspapers.

HE was also the first writer to tell the industry that Teapot Dome would not be an important field. That article was based on Mr. Smith's investigation of the first test wells, and was published when the country generally believed Teapot Dome would be an enormous oil field. His later articles followed the course of development of the field and the laying of the Sinclair Pipe Line from Teapot.

YOU will not want to miss his stories on the trial. They will be the most interesting and comprehensive of all the news stories written from Cheyenne.

—Editor.

ing was taken over by the sales and credit managers, with George D. Locke, vice president of the Barnsdall Refining Co. presiding.

F. L. Miller, vice president of the Miller Petroleum Co., read a paper on "Relation of Sales Department to Credit Department," while M. D. Creel, credit manager of the Marland Refining Co., discussed "The Problem of Credits." Mr. Miller's paper was published in the March 4th issue.

Mr. Creel said that the sales department is too likely to regard the credit department as a stumbling block to their sales efforts and the credit manager as a crab.

"But I notice that every time I soften up and smile," said Mr. Creel, "the company has to charge something off." He asserted that the credit manager, in order to be effective in his job, should be given authority to forbid delivery of goods to accounts whose credit standing was unsatisfactory.

Mr. Creel urged that the credit term allowed wholesale buyers of gasoline should not exceed the length of the turnover period for the gasoline purchased. In other words, the customer should pay for the gasoline by the time he had sold it. The average length of the turnover period is from seven to 10 days, Mr. Creel estimated.

He read a resolution which was drawn up by the credit managers' association of the W. P. R. A. some time ago, setting forth this recommendation. This resolution later was adopted by the convention in open meeting.

Supply Companies Join in Entertaining Refiners

KANSAS CITY, March 5.—Oil men always like to go to Kansas City for conventions and one of the reasons is the Kansas City Oil Men's club. The Kansas City oil men welcomed the visitors and showed themselves mighty good hosts at a party last night at the Kansas City Athletic club.

Beginning with a buffet supper, the entertainment included singing and dancing numbers, after which the crowd adjourned to the gymnasium where they were entertained with a wrestling match, several boxing bouts and comic features. The hosts of the occasion, besides the oil men's club which engineered the entertainment and worked hard to make it successful, were:

American Steel Works.
American Can Co.
Acme Petroleum Co.
Atlas Petroleum Co.
Battenfield Grease & Oil Co.
Benzo Gas Co.
Butler Manufacturing Co.
Crane & Co.
Clear Vision Sales Co.
Columbian Steel Tank Co.
Cook Paint Co.
Cosden & Co.
Continental Oil Co.
Deepwater Oil Refineries.
Diamond Refining Co.
Forrester-Nance Box Co.
Foamite Childs Corp.
Gille Manufacturing Co.
Gustin-Bacon Manufacturing Co.
C. A. Gustafson.
Hays Equipment Co.
Home Oil & Supply Co.
Inman Box Co.
Janssen Ostertag Manufacturing Co.
Kanotex Refining Co.
Kaw Boiler Works.
Kansas City Bolt & Nut Co.
Kansas City Structural Steel Co.
Kansas City Trunk Co.
K-M Supply Co.
Linde Air Products Co.
Marland Refining Co.

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National Petroleum News

Compilation Of Mid-Continent Refinery Operations

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Stocks of All Products Added to By Mid-Continent Refiners

(By Fast Wire Service)

TULSA, March 10

DURING the week ended March 6, 118 refiners reporting to National Petroleum News decreased daily average runs to stills 10,377 barrels, to an average through put of 282,029 barrels. North Louisiana and Arkansas, where refiners increased runs to stills 4.9 per cent to a daily average of 41,162 barrels were the only exceptions to the decline. The greatest decrease was made by the 21 reporting Kansas plants, where runs to stills averaged 63,417 barrels daily, a decline of 4754 barrels from the preceding week.

With the exception of Oklahoma, production of gasoline in all states exceeded shipments, and gasoline stocks increased 870,041 gallons at all reporting plants. The 45 Oklahoma refiners produced 10,080,568 gallons, and shipped 12,043,460 gallons, almost 20 per cent more than they produced and their total stocks at the end of the week were 36,232,370 gallons. Kansas refiners shipped only 71.4 per cent of their production and stocks were increased 1,848,669 gallons to 16,860,558 gallons.

Shipments of kerosene were below production in all states, and stocks in the whole area increased 870,047 gallons to 20,213,772 gallons. Production of kerosene during the week ended Feb. 27 was 6,573,083 gallons at 118 reporting plants, with shipments at 5,749,726 gallons, whereas production during the week neded March 6 was 7,194,517 gallons in comparison with shipments of 6,324,470 gallons. Kansas refiners shipped only 78 per cent of production and stocks increased 478,377 gallons.

Production of gas and fuel oil at all plants was 36,463,787 gallons and shipments were 36,183,729 gallons, resulting in an increase in stocks of only 280,058 gallons. Oklahoma refiners produced 10,800,783 gallons, and shipped 12,529,457 gallons, decreasing their stocks 1,728,674 gallons. North and central Texas refiners produced 11,291,140 gallons with shipments at 9,925,849 gallons, increasing stocks 1,365,291 gallons.

At the rate of shipments maintained during the past week stocks of gasoline at the 118 reporting plants on March 6 represented 20 days' supply; kerosene stocks 22 days' supply, and stocks of gas and fuel oil 23 days' supply. The total number of reporting plants is two less than in previous reports, but all figures are comparable.

The small table covering shipments and production of gasoline for the four weeks ended March 6, shows that during the 28 days, gasoline shipments represented 95 per cent of production and stocks increased only 5,622,081 gallons at all plants. Kerosene shipments were almost on a par with production and stocks increased only 962,387 gallons during the four weeks. The reporting plants shipped 97.1 per cent of their gas and fuel oil production and stocks increased 4,231,335 gallons.

Summary for Past Month

Production and shipments, all reporting refineries for four weeks ending March 6. Change in stocks figured from Feb. 6:

Gasoline	**Gallons**
Production	111,474,462
Shipments	105,852,381
Net change in stocks	+5,622,081
Ratio sale to production	95.0%
Kerosene	**Gallons**
Production	26,614,145
Shipments	25,651,758
Net change in stocks	+962,387
Ratio sales to production	96.4%
Gas and Fuel Oils	**Gallons**
Production	146,880,525
Shipments	142,649,190
Net change in stocks	+4,231,335
Ratio sales to production	97.1%

Mid-Continent Refinery Operations Week Ended Mar. 6 (*By Special Telegraph Service*)

	Kansas	%Change Previous Week	Oklahoma	%Change Previous Week	No. & Cent. Texas	%Change Previous Week	La.-Ark.	%Change Previous Week	Total	%Change Previous Week
No. of Plants	21		45		38		14		118	
Da. Still Cap. (bbl.)	95,700		154,400		133,300		50,900		434,400	
Da. Av. Crude Run	51,559		81,753		73,529		14,430		241,271	
Da. Av. Other Oils	11,858		11,416		10,752		6,732		40,758	
Da. Av. Total Stills	63,417	— 7.1	93,169	— 3.9	84,281	— 4.2	41,162	+ 4.9	282,029	— 3.5
GASOLINE—Gals.										
Stocks Feb. 27	15,011,889		38,195,262		13,044,651		5,200,162		71,451,964	
Prod. 2-27—3-6	6,471,707	— 7.4	10,080,568	— 3.4	8,024,856	— 5.2	2,096,526	+ 7.0	26,673,657	— 4.2
Ship. 2-27—3-6	4,623,038	—25.4	12,043,460	+ 0.6	7,382,578	—10.4	1,559,176	—20.1	25,608,252	— 9.7
Stocks March 6	16,860,558	+12.3	36,232,370	— 5.1	13,686,929	+ 4.9	5,737,512	+10.3	72,517,369	+ 1.5
Ratio Sales to Prod.	71.4%		119.5%		92.0%		74.4%		96.0%	
KEROSENE—Gals.										
Stocks Feb. 27	4,521,756		9,277,688		4,808,661		735,620		19,343,725	
Prod. 2-27—3-6	2,171,577	+20.0	2,241,397	+ 9.7	2,205,106	— 3.4	576,437	+31.4	7,194,517	+ 9.5
Ship. 2-27—3-6	1,693,200	+45.2	2,050,914	+12.6	2,023,793	—14.3	556,563	+39.4	6,324,470	+10.0
Stocks March 6	5,000,133	+10.6	9,468,171	+ 2.1	4,989,974	+ 3.8	755,494	+ 2.7	20,213,772	+ 4.5
Ratio Sales to Prod.	78.0%		91.5%		91.8%		96.6%		87.9%	
GAS AND FUEL OILS—Gals.										
Stocks Feb. 27	11,299,325		54,186,740		41,435,527		11,594,346		118,515,938	
Prod. 2-27—3-6	6,398,357	— 6.8	10,800,783	— 1.1	11,291,140	— 6.4	7,973,507	+ 8.4	36,463,787	— 2.0
Ship. 2-27—3-6	6,030,902	—20.9	12,529,457	+41.4	9,925,849	— 9.6	7,697,521	+ 9.6	36,183,729	+ 4.9
Stocks March 6	11,666,780	+ 3.3	52,458,066	— 3.2	42,800,818	+ 3.3	11,870,332	+ 2.4	118,795,996	+ 0.2
Ratio Sales to Prod.	94.3%		116.0%		87.9%		96.5%		99.2%	

Tell Court Col. Stewart in Mexico or South America

By Lawrence E. Smith, wiring from Cheyenne

CHEYENNE, WYO., March 9

WITH the first day's session devoted to repetition of matters brought out in the Senate investigation of leases on the naval reserves, the long delayed trial of the Teapot Dome suit opened in Federal Court here today. This is a suit in equity wherein the government seeks to annul the development contract held by the Mammoth Oil Co.

There will be introduced into the suit later by the government the allegation of fraud, and attempt will be made to show a connection between the Continental Trading Co. of Canada, which bought Mexia crude oil from the Humphrey's interests in 1921, and the Teapot Dome transaction, which was made in April, 1922. The government sent a representative to France a month ago to question J. E. O'Neil, former president of the Prairie Oil & Gas Co., and H. M. Blackmer, chairman of the board of the Midwest Refining Co. That representative, Ulrich J. Mengert, has returned and is in Cheyenne. It was indicated he failed to obtain any information except that the two did not know when they would return to the United States.

Sought also in this connection was Col. R. W. Stewart, chairman of the board of the Standard of Indiana. Attempt to obtain service on him failed and the government could get no information as to where he was. At noon today John D. Clark, assistant to Stewart, issued a short statement that Stewart has for several weeks been examining oil properties in Mexico and South America and that those negotiations have not been finished. No further statement can be made until the deal under way is concluded, Clark said.

Sen. Atlee Pomerene, of counsel for the government, made the opening statement in the case and outlined the points of attack of the suit. He said the government would show that the Teapot Dome lease should be cancelled because of lack of legal authority and because fraud was committed. The defense reserved the statement of their position until the conclusion of the government's case, which, according to Owen B. Roberts, joint counsel for the government, will take seven or eight days.

Harry F. Sinclair, president of the Mammoth Oil Co., attended the first day's session, accompanied by a number of his company executives. The defense has an imposing array of legal talent headed by Martin W. Littleton. Albert B. Fall, former Secretary of the Interior, has not arrived at Cheyenne, and probably will not until his presence as a witness is required. He came from New Mexico to Denver and is engaged there in dodging photographers and reporters.

The government has more than 40 witnesses to put on the stand. The number called by the defense has not been revealed as practically all of them will appear voluntarily and no summons have been served, it is stated by defense counsel.

Witnesses the first day were Judge E. C. Finney, Assistant Secretary of the Interior; Commander H. A. Stuart, now one of the receivers for Teapot Dome; George Otis Smith, director of the Geological Survey and K. C. Heald, formerly of the survey. They testified chiefly on departmental practices involved in the leasing of the naval reserve.

Preliminaries for A.O.M.A. Convention Finished

Staff Special

CHICAGO, March 10

HAVING broadcast enough publicity concerning the three-day convention of the American Oil Men's Association starting in Kansas City on March 17 in the Kansas City Athletic Club, to insure a good attendance, H. G. James, secretary and manager of the organization, left Chicago for the scene of the convention on March 7. He will be busy in Kansas City until the meeting opens.

Mr. James released a list of the exhibitors who will display equipment at the meeting and announced one or two changes in the program. Another prominent speaker has been scheduled for Wednesday forenoon, March 18. He is R. M. Hudson, chief of the division of simplified practice, United State Department of Commerce. His topic will be, "Elimination of Waste Through Simplification and Standardization."

The Chicago & Alton railroad has announced a special train to operate between Chicago and Kansas City for the benefit of oil men going to the convention. The C. & A. train will be all that modern trains are supposed to be and will leave the New Union Station at 8 o'clock each evening and arrive in Kansas City at 8:30 the next morning. Breakfast will be served on this train. Mr. James announced a special train over the C. B. & Q. to serve the convention. It will leave Chicago at 6 p. m., March 16. The Denver Petroleum Club has expressed intention of attending the meeting, traveling in a special car.

Prizes will be awarded for various stunts during the convention. C. J. Taglibue Mfg. Co., will award two "Tag Manuals" daily. Other prizes include two sets of oil displays of the Guarantee Liquid Measure Co.; a golf outfit, the gift of the same company; a gold watch by unnamed donor, and a woman's diamond ring. What must be done to compete for the prizes will be announced at the convention.

The list of exhibitors, not heretofore published, is as follows:

	Booth
American Oil Pump & Tank Co., Cincinnati, O.	58
Bennett Pumps Corp., Muskegon, Mich.	38
Brunner Manufacturing Co., Utica, N. Y.	15
Butler Manufacturing Co., Kansas City, Mo.	6
Clear Vision Pump Co., Wichita, Kan.	12
Columbian Steel Tank Co., Kansas City, Mo.	20
Curtis Pneumatic Machinery Co., St. Louis, Mo.	59
Dayton Pump & Manufacturing Co., Dayton, O.	14
Ehrlick Safe & Lock Co., Chicago	4
Gilbert & Barker Mfg. Co., Springfield, Mass.	31
Guarantee Liquid Measure Co., Rochester, Pa.	65
Marvel Equipment Co., Cleveland, Ohio	31
McSavaney Co., Springfield, O.	7 & 8
Milwaukee Tank Works, Milwaukee, Wis.	66
Miller Petroleum Co., Kansas City, Mo.	25
Motopower Sales Co., Kansas City, Mo.	17
Ottawa Mfg. Co., Ottawa, Kan.	19
Progress Mfg. Co., Arthur, Ill.	49
Radiant Oil Co., Lima, O.	21
Sinclair Refining Co., Chicago	52 & 53
Tagliabue Mfg. Co., C. J., Brooklyn, N. Y.	16
United Metal Hose Co., Inc., New York City	57
Viking Pump Co., Cedar Falls, Ia.	39
Wayne Tank & Pump Co., Fort Wayne, Ind.	23
Winslow Boiler & Engineering Co., Chicago	54

Marketing Summary

Oklahoma-Kansas—Gasoline inquiries increase. Market's tone is better as refiners believe bottom has been reached. Kerosene also improves. Gas and fuel oils softer. Natural gasoline sluggish. Lube business good. Wax quiet.

North Texas—Gasoline, kerosene and fuel oil dull. Gas oil movement normal.

Chicago—All products dull. U. S. motor gasoline 11½ to 11¾ cents. Fuel prices also lower.

Pennsylvania—All products quiet with prices of all neutrals slightly lower.

Gulf Coastal—All products moving satisfactorily.

New York Export—Gas and Diesel oils strong. Gasoline dull but bottom of price decline is thought reached. Lubes are quiet. Waxes unchanged.

New Orleans Export—Gas and Diesel oils strong. Gasoline and kerosene are quiet. Lubes and wax dull.

Georgia Court Orders Oil Companies Not to Raise Price of Gasoline

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, March 7

TWENTY-SEVEN cents is the maximum price that may be charged for gasoline in Georgia, until March 17 at least. This is because the leading distributors in that state have been enjoined against any price advances by the superior court of Fulton county in which Atlanta is situated.

The injunction suit was brought by George M. Napier, attorney-general of Georgia, and James L. Mayson, city attorney of Atlanta, against the Standard Oil Co. of Kentucky, Galena Signal Oil Co. of Texas, The Texas Co., the Pan-American Southern Petroleum Co., Reed Oil Corp., Wofford Oil Co. of Georgia, Continental Oil Co. of Atlanta and Gulf Refining Co.

Conspiracy in restraint of trade by agreements on prices to be charged for gasoline, and numerous other sins are charged in the petition of the state and city officials.

The superior court which corresponds in Georgia to the court of common pleas in many states, granted a temporary injunction setting 27 cents, the present price at inland points, as the maximum, and Judge E. D. Thomas set March 17 for a hearing on this feature of the suit.

Regular Hearing in May

If the temporary order is upheld it probably will be in force until some time in May. Summons have been issued returnable on May 4. This order was signed by Judge W. D. Ellis.

The public attorneys say the action was brought in the state's and city's own behalf "to protect the public interests and to preserve the public policy thereof." It is charged that when one company raises its price all immediately raise theirs, "done under and by virtue of a common understanding and agreement between all of the companies * * * to the detriment of the petitioners and others who desire to purchase the commodity sold." Fear is expressed that the companies were about to raise their prices 1 or 2 cents per gallon more.

Some of the paragraphs of the petitions have caused amusement as well as disgust among oil men who have read the petition. The state admits that it costs 24.86 cents per gallon to deliver gasoline to a dealer in Atlanta but asks that the court fix the retail price at not more than that figure.

Monopoly in the manufacture of gasoline also is charged. Perhaps only three of the companies have refining facilities capable of meeting its full gasoline requirements. At least one of these companies and all of the others are forced to buy a large part of their requirements. Among those buying on the open market is the Standard of Kentucky.

The plaintiffs set forth their cost ideas in paragraph 10 which follows:

"Petitioners charge that the present price of gasoline at the refineries is 13.50 cents per gallon and the cost of transportation to the city of Atlanta, which is selected as illustrating the price that is charged for said gasoline, is 3.86 cents per gallon, and that the loss by evaporation is 0.5 cents per gallon, and the state tax and inspection fees amount to 3.5 cents per gallon, making a total cost of 21.36 cents per gallon for gasoline laid down in the city of Atlanta, not including the cost of distribution and delivery, but these latter items will not aggregate more than 3.5 cents per gallon. Petitioners, therefore, charge that the total cost of delivering a gallon of gasoline by tank wagons to the retailer, for instance in the city of Atlanta, is 24.86 cents per gallon without adding thereto any profit to the distributor."

With the cost to the dealer or the price laid down at the service station admitted to be 24.86 cents per gallon, the petitioners proceed in the next paragraph as follows:

"Petitioners therefore charge that a sum not exceeding 24.86 cents per gallon would give to the distributor not only a fair and reasonable profit in the sale and distribution of gasoline, but a very large and remunerative profit for the services rendered, and petitioners charge that over 24.86 cents or whatever amount the court finds to be a reasonable charge per gallon, is unfair and unreasonable and amounts to an extortionate charge on the part of the defendants and their confederates in the handling and sale of gasoline."

The petition then proceeds to say that at the 27-cent price the oil companies are getting a profit of approximately 4 cents per gallon although the cost delivered to the retailer is previously admitted to be 24.86 cents. Basing 1925 consumption the same as 1924's, the petitioners estimate the 1925 profits of the distributing companies at $4,640,000 which they charge would be excessive and unreasonable.

Increase "Without Warrant"

Concerning the increases in gasoline prices since Jan. 1, totaling 7 cents in Georgia, they say:

"Petitioners charge that the increase of price since the first of the year 1925, has been without warrant or cause and actuated purely and solely by a desire to extract from the citizens and users of gasoline in this state and in said city of more than a fair and reasonable return upon said commodity. They charge that said defendants and their confederates have a monopoly in the supply of gasoline and by said agreement and confederation control the price, and petitioners and others using such gasoline are at the mercy of said defendants and their confederates unless this court intervenes under the power vested in it by the laws of this state."

The petitioners set forth that the average cost of gasoline by "tank" last year was 19½ cents per gallon. Records of National Petroleum News show that to be the average tank wagon price last year if the 3½-cent tax and inspection fees are included. This makes the actual cost of the gasoline only 16 cents per gallon.

What State Seeks

The prayer of the Georgia officers follows:

"(a) That defendants, their officers agents and employes and confederates be enjoined from charging petitioners

Order That "Outlaws" Price Advances

CLEVELAND, March 7

THAT part of the order of the Atlanta court in which the leading gasoline distributors of the state are enjoined from increasing the price of gasoline, follows:

"It is furthermore ordered that pending the hearing upon this petition that the defendants named in said petition, together with their officers, agents, employes and confederates be and they are hereby temporarily restrained from increasing the price of gasoline within the State of Georgia or said city of Atlanta over and beyond the price now being charged therefor, to-wit, the sum of twenty-seven (27c) cents per gallon. It is furthermore ordered that the said defendants be served with a copy of this petition and order.

"This the 28th day of February, 1925.

"E. D. THOMAS,
"Judge, S. C. A. C."

and their patrons within the state of Georgia and said city more than a fair price for said gasoline which petitioner alleges should not be more than 24.86 cents per gallon which price, petitioner alleges, will cover not only the cost of the delivery of said gasoline within said state and city but also a very handsome profit thereon.

"(b) That said defendants, their officers, agents, employes and confederates be enjoined from increasing the price of said gasoline within said state and city over and beyond the price now being charged therefor, and, in this connection petitioners pray that a temporary restraining order be issued against said defendants, their officers, agents, employes and confederates restraining them from any increase in the price of gasoline in the state of Georgia until further order of this court.

"Petitioners pray such further and other relief as to the court may seem proper upon the hearing of this cause.

"(b-2) Petitioners pray that defendants and their associates be enjoined from combining and confederating among themselves whereby the price of gasoline is fixed without regard to its cost and at the will of said defendants and their associates, and that said existing combination agreement be declared illegal, in restraint of trade, and against the public policy of this state, and that this injunction be made perpetual and that said defendants and their associates be perpetually enjoined from entering into and engaging in the said illegal combination and confederacy as herein described.

"(c) That process may issue directing said defendants to be and appear at the next term of this court to answer petitioners' complaint."

In the fight of the oil companies, it will be shown that it costs approximately 3 cents per gallon to operate a service station and it will be argued that the superior courts of Georgia have no jurisdiction in a suit like this because gasoline is a commodity in interstate commerce.

Neither Good Law Nor Good Arithmetic

THE present administrators of the governments of the state of Georgia and the city of Atlanta are dissatisfied with the goose which has been laying the golden eggs for several years. They are trying to wring its neck or pluck its feathers for the delectation of the flivver running franchise holders of their state.

The suit of the state and its capital city against the leading gasoline distributing companies operating in the state, can be interpreted only as a demagogic appeal for the popular huzzas. Surely no informed person—we are inclined to believe not even a politician—would be so stupid as to believe the operations of the economic forces of demand and supply can be dammed by a mere county court. We do not believe that this attempt at government by litigation can be anything but a temporary affair, even in Georgia.

The temporary injunction prohibiting an increase in the price of gasoline above 27 cents a gallon, granted 10 days ago by the superior court at Atlanta, without a doubt is solely a matter of court routine that shortly will be reversed. It is inconceivable how any judge would grant a restraining order if he had perused the flimsy, illogical and contradictory document presented by the legal officers of the state and city. Its arithmetic in computing the price of gasoline for Atlanta, would appal even the dullard of a grammar school.

In Paragraph 10 of the petition is this sentence: "Petitioners, therefore, charge that the total cost of delivering a gallon of gasoline by tank wagons to the retailer, for instance in the city of Atlanta, is 24.86 cents per gallon, without adding thereto any profit to the distributor."

Then follows this contradictory paragraph 11: "Petitioners, therefore, charge that a sum not exceeding 24.86 cents per gallon would give to the distributor not only a fair and reasonable profit in the sale and distribution of gasoline, but a very large and remunerative profit for the services rendered, and petitioners charge that over 24.86 cents, or whatever amount the court finds to be a reasonable charge per gallon, is unfair and unreasonable and amounts to an extortionate charge on the part of the defendants and their confederates in the handling and sale of gasoline."

Not even the traditional Philadelphia lawyer could reconcile these two statements if the copy of the petition sent one of the defendants is true. They are but examples of the general absurdity of the Georgia officials' bill.

But what of this "extortionate" price which the Georgia motorist is asked to pay for a gallon of gasoline which will carry him and his family from 10 to 25 miles for 27 cents? The state admits that the cost delivered to the retailer is 24.86 cents per gallon. That leaves 2.14 cents per gallon to pay the service station attendant, the rent or depreciation charges on the station, the taxes or rent on the grounds, the accommodations afforded the customer such as air and water.

But how much of the 27 cents does the state get? Its share is 3.5 cents or over 50 per cent more than the gasoline distributor's admitted share. This 3.5 cents includes the .5 cent inspection graft and the 3 cents sales tax, which netted the state $3,361,000 in 1924.

Of the sales tax receipts, one third goes to the state for a state aid system of highways and bridges, one third goes to the counties in proportion to the mileage of state aid roads in any county to the general system, and one third goes to make up a deficiency in the state treasury caused by the discount of rentals to be derived from the state owned railroad under lease to the Louisville & Nashville railroad.

This railroad runs from Chattanooga to Atlanta and the state derives $45,000 per month rental from it. Several years ago the legislature of Georgia abandoned its pay-as-we-go policy and adopted a spend-as-much-as-we-can-get plan. It discounted the future income from the railroad for various state institutions—schools, prisons, etc. The motoring public that the legal officers of the state and Atlanta are now "protecting" from the gasoline "extortionists," is paying for their legislators' extravagance to the tune of more than $1,120,000 per year.

Out of every $1 spent for motor fuel in Georgia, the state gathers unto itself approximately 13 cents. And now it wishes to increase its share by plucking the goose and making the egg weigh more in proportion to the whole bird.

It has been suggested that were the state of Georgia an oil producing state, its attitude would be different. What a storm of disapprobation would be aroused if the attorney general of Rhode Island should seek to force a price of not more than 12 to 15 cents a pound for Georgia cotton spun in the mills of that state? What if similar action should be taken in every other state and in every country that uses cotton? And there are few that don't use it.

The oil industry is just emerging from a period of overproduction and low prices. It took the punishment of low prices like a man. It did not whine. It did not ask the country to buy a barrel of crude to take it off the market. Yet the officials of a state that only 10 years ago was bound up body and soul in a buy-a-bale campaign, is now kicking an industry that is struggling back to its feet.

Isn't it about time that the oil industry resent these continual attacks and not merely turn the other cheek?—R.B.S.

Shallow Sand Field Opened in Caldwell County, Texas

By Paul Wagner
N. P. N. Staff Writer

HOUSTON, March 6

ANOTHER shallow sand field having the general characteristics of old Corsicana and San Antonio developments has been opened in the northern part of Caldwell county by Storey & Lefevre, drilling in their No. 1 Mrs. W. L. Brewer, in the J. Burleson survey, near the town of Lockhart.

The well was showing for about 30 barrels daily, at the time this was written, from 31 feet of sand at 1216-1247 feet. Total depth is 1254 feet steel line measurement. The sand is said to be in the Taylor marl, or near its contact with the overlying Navarro formation of upper Cretaceous. The oil is green in color and tests 35.1 degrees, corrected gravity, at 60° Fahrenheit.

First reports from Lockhart indicated the completion of a 1000-barrel well, but this was soon disproved. A well of such size in the Taylor marl in Texas would be comparable only with the flashy Thrall wells of 1914, which produced from the Upper Cretaceous beds at a point where they were influenced by volcanic action. Although several Thrall wells made initial productions of 1000 barrels daily, or more, they did not hold up. Thrall now produces only a few hundred barrels daily.

Virtually no acreage is open in the territory around the Brewer well, leaseholds having been taken up by the larger companies. Obscure structural evidence at the surface had caused the taking up of acreage against the time when 2100-foot tests would be put down to the Edwards limestone producing level of Luling; the shallower pay developing importance in the Brewer well in a test originally intended for the deeper horizon.

The well is close to the Caldwell county boundary with Bastrop, where outlying leases have been recently selling at $5 to $25 an acre; royalty at $200 an acre. Prices, of course, went skyrocketing upon completion of the Brewer well.

Petroleum history records no prolific recoveries from fields producing from the Taylor marls in Texas. The Corsicana shallow fields, which began producing in 1896 and reached maximum yearly production of 1,000,000 barrels in 1906, give up their yields from that horizon. The Somerset development, near San Antonio, reflects production from approximately the contact level of the Taylor with the overlying Navarro formation. This production amounts to about 3600 barrels daily.

The old Mexia gas pool, which yielded some shallow oil, also produced from the Taylor, as did a similar gas field at Wortham. Gas wells making as great volume as 15 million cubic feet daily, with 275-pounds rock pressure, were completed at the time of Mexia gas development, years before the prolific oil yields from the deep Woodbine sand. Although never important for oil in the Taylor horizon, a well drilled in May, 1912, sprayed 28 Be. gravity black oil with the gas flow at Wortham.

It is important in considering the lack of economic significance of Texas fields producing from the Taylor that it was considered prior to the "discovery" of Mexia deep pay that the Woodbine sand would not produce oil in the Lone Star state. Since then Powell, Wortham and Richland have been important fields at that level.

Until Homer came in, the Nacatoch formation in north Louisiana was considered to be only gas bearing. After Homer there were successively developed the important Nacatoch sand fields at El Dorado, Ark., Bellevue, La. and Smackover, Ark. The 1400-1600 foot pay at Homer is the Nacatoch horizon. the 2000-foot oil coming from the Blossom sand, which is the pay level of Haynesville, La.

The Taylor and Navarro beds of Texas are represented in Arkansas and Louisiana by three members, known in ascending order as the Marlbrook marl, the Nacatoch sand and the Arkadelphia clays. In Texas, the Taylor lies conformably above the Austin chalk and below the Navarro formation.

Coming Meetings

Independent Oil Men's Assoc. of New England, Boston, Mass., March 11.

American Oil Men's Assoc., Athletic Club, Kansas City, Mo., March 17, 18, 19.

American Association of Petroleum Geologists, Wichita, Kan., March 26, 27, 28.

American Assoc. of Oil Burner Manufacturers, Edgewater Beach Hotel, Chicago, April 1, 2, 3.

National Petroleum Marketers Ass'n., Congress Hotel, Chicago, Ill., April 7, 8, 9.

National Petroleum Assoc., Hotel Riverside, Cambridge Springs, Pa., April 22, 23.

Assoc. of Natural Gasoline Manufacturers, Mayo Hotel, Tulsa, Okla, April 22, 23.

Natural Gas Assoc., Atlantic City, N. J., sometime in April. Date not set.

Bazette, if Field, Will be of Smaller Area

Staff Special

HOUSTON, March 6.—Additional testing will be necessary to prove the existence of oil at Bazette. This Navarro county prospect, northeast of Powell, has been delayed in its entrance into the productive column by the completion as failures of two more test wells.

The Humphreys-Boyd Oil Co., drilling on the W. R. Stevenson farm, slightly west of south of the town of Bazette, tested dry at 3016 and 3059 feet after setting casing at 3011 feet. Although drilling was to be carried deeper in the Humphreys-Boyd test, there was little hope remaining of its proving productive.

A few days earlier the Robert R. Penn et al. test on the Absher, 800 feet north of the Humphreys-Boyd, had tested dry in all sands down to the 3080-3086 foot level, where it was finally completed for a 20-million cubic foot gasser. The gas flow was accompanied by a large amount of water.

As previously mentioned in these columns the Penn well had only 42 feet of the Austin chalk marker formation, which it went out of at 2705 feet, in comparison with a normal chalk thickness in the Humphreys-Boyd test of about 400 feet. The chalk was topped in the Humphreys-Boyd test at 2127 feet. The conditions mentioned went to prove that the Penn test had drilled through a fault plane at the chalk level. The other test is on the upthrow side of the fault.

Penna. Refining Moves Office to Karns City

KARNS CITY, PA., March 10.—General and sales offices of the Pennsylvania Refining Co. were removed from Oil City to Karns City March 7. All operations of the company which is a consolidation of the old Pennsylvania Refining Co. and the marketing company, the Pennsylvania Oil & Refining Co., are being concentrated at the refinery, improvements on which have about been completed.

The offices of the company are now situated in a two-story brick building only recently completed. Other improvements at the Karns City plant include a large increase in still capacity, doubling of facilities for petrolatums of which the company is one of the largest manufacturers, and the installation of the Sharples process for making of long residuum motor oils.

The policy of the company will be unchanged, C. N. Fry, sales manager, said. A carload marketing business will be continued along the same lines as was done at Oil City.

Treating, Corrosion and Fractionation Feature Technical Meetings

By Paul Truesdell
N. P. N. STAFF WRITER

KANSAS CITY, March 5

THREE phases regarded as among the most important in the whole refining business held the chief attention of the technologists and operating men at the technical sessions of the Western Petroleum Refiners Association yesterday and this morning. These were:

1—Treating.
2—Corrosion.
3—Fractional distillation and condensation.

The first paper on treating was read by Dr. C. K. Francis, general manager of the Braden Co., Tulsa, and for years chief chemist of Cosden & Co. Dr. Francis, whose paper is found in another part of this issue, pointed out the greatly increased importance of light oil treating since the extensive development of cracking processes has resulted in the production of a large amount of pressure distillate that must be treated to remove the resinous and color-forming compounds.

He pointed out the losses incurred in batch treating and the development of continuous treating processes, stressing that such a continuous treatment system need not be an expensive affair but can be built by any refinery superintendent from pipe and old tanks which he can usually find available about his plant yard.

His paper stated that economy of acid in the treating is desirable and asserted that in many cases too much acid is used, thereby increasing unnecessarily the cost of the process. It was brought out in the discussion that re-running is necessary after acid treatment.

Walter Miller, director in charge of refining of the Marland Refining Co. pointed out how this was brought to his attention years ago at the Tide Water Oil Co. refinery when some gasoline that had been acid treated and shipped brought complaints from customers that it would gum in the carburetor.

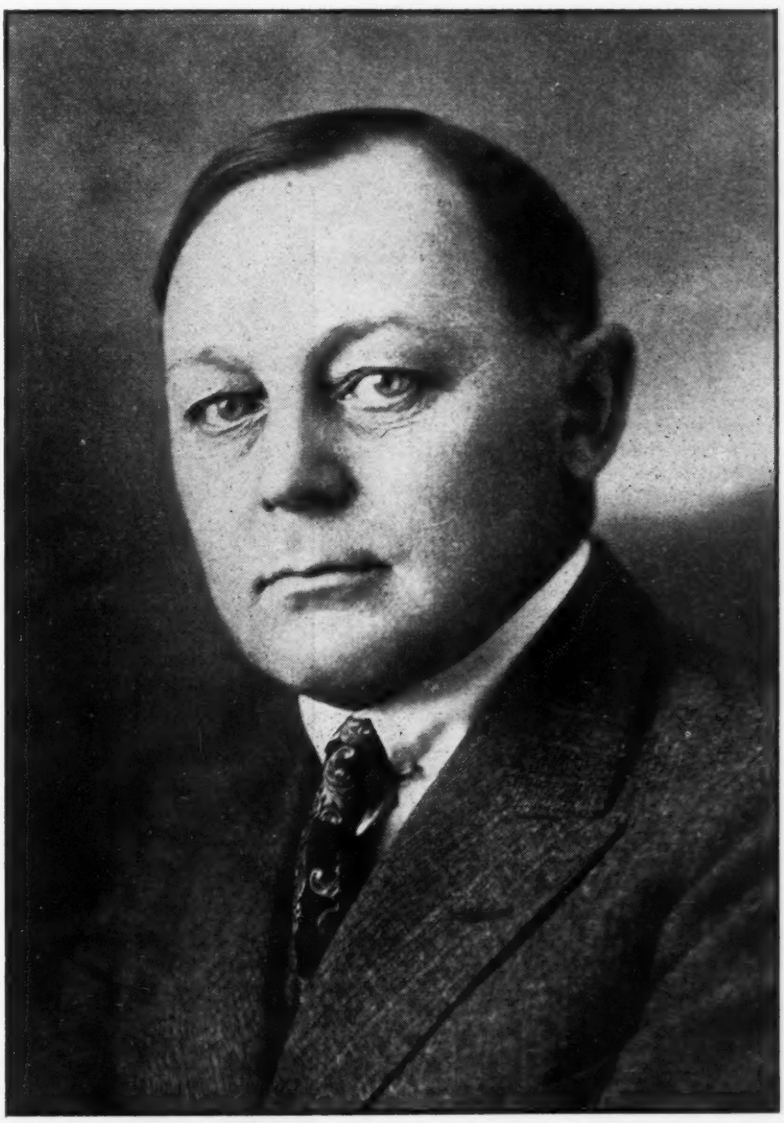
This led to investigation which brought out the fact that there are gummy compounds formed in the reaction between the acid and the hydrocarbons that it requires heating up to 300 or 350 F. to break up, hence the necessity for re-running. If these compounds are left in the fuel, they later make trouble in the automobile gas line.

Malcolm H. Tuttle, consulting engineer of the Continental Oil Co., Denver, amplifying what Dr. Francis said about the possibility of building cheaply a satisfactory continuous treating plant and of conserving acid, stated that a very inexpensive plant had been built at one of the Continental's plants and that A. D. David, manager of refineries of the Continental, had worked out a means for re-circulating the sludge acid through the system, getting the utmost out of it, that had reduced the acid consumption of the company in treating pressure distillate from three pounds to the barrel to three-quarters of a pound per barrel. Mr. David was the first man, so far as Mr. Tuttle knows, to do this.

There was considerable discussion of the hypochlorite process of treating and several men who had had experience stated that while the hypochlorite is found in many plants a satisfactory substitute for doctor solution for the sweetening of pressure distillate or gasoline, it is not a satisfactory substitute for acid treating.

In connection with the doctor treating of gasoline, Dr. Jacques Morrell of the Universal Oil Products Co., pointed out that the result of the treatment is often nullified and the gasoline rendered unable to stand the corrosion test by the addition of too much sulfur to the treating solution.

Dr. Francis in his paper touched on the vapor phase treating of pressure



F. A. Pielsticker
Vice President, Skelly Oil Co.
Re-elected President of Western Petroleum Refiners Association

distillate by the clay contact process which has been developed by Dr. T. T. Gray. A paper on this process was read this morning by Dr. M. R. Mandelbaum of Dr. Gray's company.

Talks on Dollar and Cent Basis

In this paper, Dr. Mandelbaum in a simple manner, discussed the chemistry of pressure distillate and the chemical reactions involved in its treatment.

His talk was based largely on the commercial operation of the Gray process at the plant of the Barnsdall Refining Co. at Barnsdall Okla., which was described from an operating standpoint in a recent issue of National Petroleum News, and also from the results of extensive experiments in the laboratory.

Figuring on what he considered a conservative basis, he pointed out in dollars and cents the savings to be made by the use of the Gray vapor phase process over the acid treating method for pressure distillate. Dr. Mandelbaum's paper will be published in next week's issue. The royalty charged by the Gray Corp. for use of the process is 6 cents per barrel of gasoline recovered, Dr. Mandelbaum said.

Another paper that aroused a great deal of interest was that of Dr. F. W. L. Tydeman, superintendent of the Roxana Petroleum Corp.'s refinery at Wood River, on the subject of corrosion as it is encountered in refineries. Dr. Tydeman's paper was published in full in the March 4 issue of National Petroleum News.

However, he went somewhat further in his talk than in his prepared paper as to the methods of handling application of ammonia which is used successfully at this plant to counteract corrosion where it is caused by the formation of hydrochloric acid from the salts contained in the crude, and water.

In enumerating the causes and phases of corrosion in a refinery, he mentioned oxidation of the tubes in a pipe still by their contact with the flames. One means of reducing this, he said, was by the use of a furnace preheating the air and eliminating the admission of excess air into the furnace which he said "has been described in National Petroleum News by Paul Truesdell in his article on the Lientz furnace."

He stated that there are freakish aspects of corrosion sometimes to be met with, illustrating this by stating that in pipe stills at his refinery, it is found that both erosion and corrosion, the former probably aiding the latter to some extent, are found to be more severe in a particular tube or bank of tubes in each unit than in any other tube or bank in the same furnace.

Mechanical Wear From Cleaning

The erosion, of course, is caused by the turbining of the tubes to clean them of carbon and other deposit. Dr. Tydeman said he was at a loss to explain this peculiar situation.

In answer to a question by O. C. Smith, assistant superintendent of the Skelly Oil Co.'s refinery at Eldorado, Kan., as to how the application of the ammonia is handled at the Roxana plant Dr. Tydeman replied that the aqua or liquid ammonia is used and that it is blown into a small elevated tank from which a quarter-inch line leads into the main vapor line from the still.

A control valve is placed on the quarter-inch line and the ammonia is fed in by gravity. A gage glass is placed on the ammonia tank and by observing the gage glass it is possible to judge pretty accurately the amount of ammonia that is being fed in. The quantity of ammonia going through, he said, also can be gaged from observation of the water separating out in the tail house.

While Dr. Tydeman did not give the figures showing the amount of ammonia it is necessary to apply, he said that this could be easily figured out on a theoretical basis by analyzing the crude to determine the amount of magnesium chloride and that amount of steam used, when by calculation it could be determined how much ammonia must be fed into the line to offset the amount of hydrochloric acid that would be formed by that amount of magnesium chloride and that amount of water. He said, however, that in practice it is generally found necessary to use somewhat more ammonia than the theoretical calculations indicate.

At any rate, the amount used at the Roxana refinery would probably serve only as a rough guide to any other refiner because the rate of application of ammonia would probably be different for every different crude, depending on its content of magnesium chloride or other acid-forming salts, and also, probably on different methods of operation.

Lining Acid Blowcases

Touching briefly on the subject of sulfuric acid corrosion in treating systems, Dr. Tydeman referred to another article on treating which was published in National Petroleum News some time ago. In this article it was stated that a certain refiner lead-lined his acid blowcase or egg, used in feeding the acid into a continuous treating system.

This article, Dr. Tydeman said, led him to wonder whether the blowcases at his plant, which are not lead lined, had suffered any corrosion on that account. He had a careful inspection made of them, five or six of them being in the plant, and he said inspection showed that none of them showed a trace of corrosion and they have been in use for about six years. This, of course, is because the blowcases contain only con-

Roy B. Jones, president Panhandle Refining Co., Wichita Falls, Tex. Re-elected vice president of W. P. R. A.

centrated 66-degree acid which is not corrosive to steel.

Other refiners, however, maintain that while acid lining may not be necessary in a plant where the quality of the acid used is uniform, it pays to lead line the eggs in plants where at times the degree of concentration of the acid may vary.

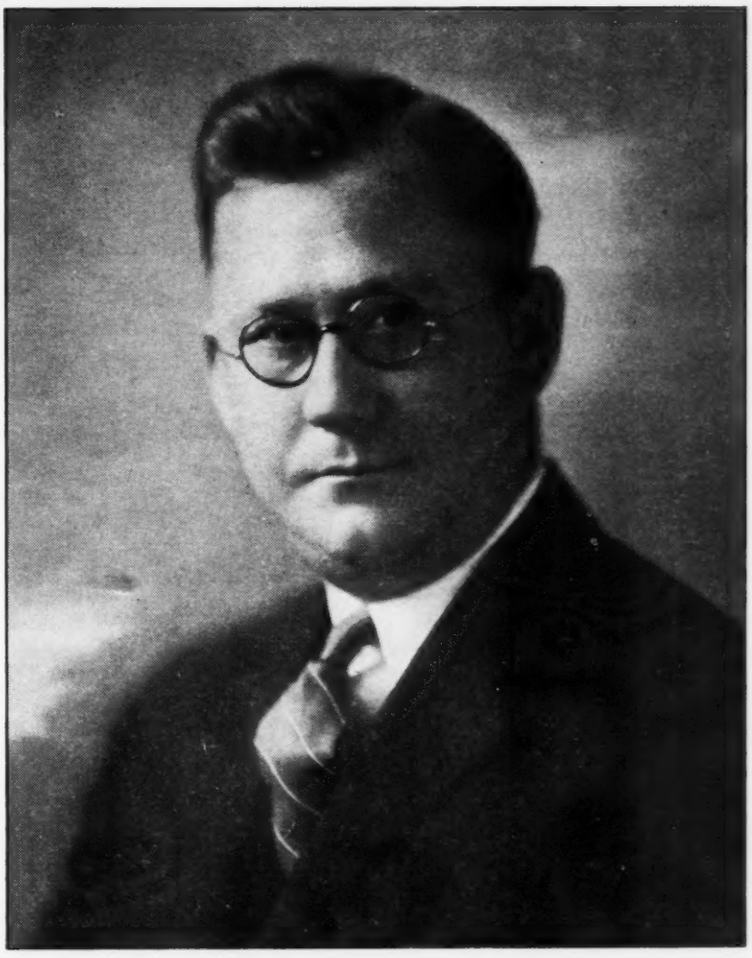
Two papers, read together on development of distilling and fractionating equipment and fractional distillation in a petroleum refinery were read by W. A. Peters, formerly associated with the Du Pont company and now with E. B. Badger's Sons Co. of Boston. Mr. Peters traced the development, historically, of the arts of distillation and fractionation from the earliest times and then came down to the petroleum industry.

The chief point he made in connection with the petroleum industry was that while a hollow tower packed with crushed stone or other packing will do the same work of condensation as a bubble tower, it takes 12 or 14 feet of packed column to do the work that can be done by two or three bubble plates and the size of the openings in the packing material has to be nicely calculated so that to get an efficient packed tower would require a vastly greater investment than to get a bubble tower to do the same work.

He described the principle of the bubble tower as being "countercurrent scrubbing" about which a good deal has been said in articles in National Petroleum News. Dr. Peters is recognized as one of the leading authorities in the country on distillation and fractionating but most of the refiners present at the meeting felt that they got little information that it was possible to translate into actual operating practice at their plants. Mr. Peters, in fact refused to answer practical questions as to the spacing of bubble plates and other features of bubble towers.

H. W. Camp, general superintendent of refineries of the Empire Refineries Inc., had a paper on "Developments in Design and Operation of Topping Plants." This was a paper on practical refinery construction and operation which will be published in the March 18 issue. Mr. Camp showed the great advantage in efficiency as between a pipe still and a shell still, placing the efficiency of the latter at 30 to 38 per cent and that of the former at 60 per cent or better.

He described the construction of a pipe still that he has found efficient when operated with a series towers as the first still in a battery of topping units.



Howard Bennette, Tulsa,
Re-elected managing director of W. P. R. A.

Officers and Directors of the W. P. R. A.

The officers of the Western Petroleum Refiners Association, all re-elected are:

President, F. A. Pielsticker, vice president Skelly Oil Co., El Dorado, Kan.

Vice presidents: P. M. Miskell, general manager Empire Refineries, Inc., Tulsa.

Roy B. Jones, president Panhandle Refining Co., Wichita Falls, Tex.

George D. Locke, vice president Barnsdall Refining Co., Chicago.

Managing director, Howard Bennett, Tulsa.

Washington counsel, Fayette B. Dow, Washington.

Commerce counsel and traffic manager, P. A. Conway, Tulsa.

Statistician, H. K. Davis, Tulsa.

The board of directors were all re-elected with the exception that D. L. Gilland of the Pure Oil Co. was named to succeed W. P. Gage of the same company and L. R. Crawford of the Producers & Refiners Corp., Denver, was elected to succeed George N. Moore. The board of directors as at present constituted is as follows:

H. T. Ashton, Lubrite Refining Co., St. Louis.

Weston Atwood, DeLeon Pipe Line & Refining Co., DeLeon, Tex.

V. E. Bolene, Bolene Refining Co., Enid, Okla.

D. E. Buchanan, Chestnut & Smith Corp., Tulsa.

W. K. Campbell, Western Oil Corp., Tulsa.

S. C. Collins, Marland Refining Co., Ponca City, Okla.

O. L. Cordell, Waite Phillips Co., Tulsa.

A. L. Derby, Derby Oil Co., Wichita, Kan.

H. B. Earhart, White Star Refining Co., Detroit.

D. L. Gilland, Pure Oil Co., Dallas, Tex.

A. F. Garrett, Tidal Refining Co., Tulsa.

E. W. Goebel, Kansas City Refining Co., Kansas City.

John L. Gray, Shaffer Oil & Refining Co., Tulsa.

C. L. Henderson, Vickers Petroleum Co., Wichita, Kan.

R. R. Irwin, White Eagle Oil & Refining Co., Kansas City.

Elliott Jones, Elliott Jones & Co., Inc., San Antonio.

A. E. Landsittel, Globe Oil & Refining Co., Tulsa.

N. H. Martin, Texhoma Oil & Refining Co., Wichita Falls.

J. H. Miller, Miller Petroleum Co., Kansas City.

(Continued on bottom of page 37)

Fire Prevention, Safety, and Raising of Endpoint Discussed at Meeting

Staff Special

KANSAS CITY, March 5

R. L. SHOEMAKER of the Standard Oil Co. of New Jersey whose services have been loaned by his company to the sub-committee of the American Petroleum Institute which is investigating the causes and effects of tank fires in the oil industry during the last 10 years, was the first speaker at the breakfast meeting this morning, the last day of the convention.

Mr. Shoemaker made a strong appeal to the oil company executives to see to it that the questionnaires sent out by the sub-committee to oil companies some time ago be carefully studied and answered promptly. These questionnaires, a copy of which was published in National Petroleum News some time ago, seek to get the history of tank fires that have occurred throughout the industry.

This information, when it is at hand, will be tabulated, Mr. Shoemaker explained, and will furnish the knowledge upon which it is proposed to draft model ordinances governing oil storage tanks regulations for general use throughout the country.

Mr. Shoemaker pointed out some of the instances where companies are subjected to unnecessary hardship and expense by useless rules imposed by some set of fire regulations gotten up by fire marshals or state legislatures or city councils without any real knowledge of the hazards involved and the best means of coping with them.

He cited one case where an oil company had put up a tank that cost $4100 and then, by an ignorant or overzealous fire marshal, had been compelled to spend $21,000 in putting up a concrete dike which from a practical standpoint was perfectly useless.

You May Be Next

"If it happens that your own company doesn't have any of these difficulties to fight, because you don't have any trouble in the territory in which you operate, don't neglect to answer the questionnaire," Mr. Shoemaker urged. "It isn't going to do anybody any harm to send in the information and it will help a great many companies and the industry in general a great deal."

He pointed out that conditions for many companies may change in the future so that they will benefit by sane and general fire regulations that may be formulated as a result of the information gathered.

"Your storage plant may be far outside the city limits now and you may be free from troublesome restrictions but in a few years your plant may be in the center of a congested district. Then city rules will apply and you may have all kinds of trouble unless the fire regulation situation is ironed out now," he said.

President F. A. Pielsticker of the association, who presided at the meeting reinforced the plea of Mr. Shoemaker, stating that there is nothing of more importance to the industry than to get the fire regulations made reasonable and uniform over the country.

"Safety Work in Petroleum Refineries" was discussed by Ray Miller, safety engineer of the Marland Refining Co., following Mr. Shoemaker's talk. He emphasized the point that while it is the duty of every company to provide as far as possible mechanical safeguards for machinery and equipment, the important success of the safety movement can come only from educating the men themselves in ways of carefulness. Mr. Miller's paper is published on another page of this issue.

At this meeting also, Walter Miller of the Marland Refining Co., discussed the proposed action of the refiners' association to place a formidable protest before the Federal Specifications Board against the continuance of the prescribed distillation range for gasoline now that the testing method has been changed by the removal of cotton from the thermometer bulb.

History of the Fight

Mr. Miller traced the history of the cotton on the bull method, stating that technologists composing Committee D-2 of the A. S. T. M. have always been divided and still are over the question of cotton or no cotton. The opponents of the cotton triumphed in 1923 and the cotton was taken off.

Mr. Miller stated that he had appeared before the committee last summer as the sole representative of the western refiners with an appeal that either the cotton be restored or the distillation range changed so that a bare bulb distillation would show the same quality on the same gasoline as the cotton on the bulb method. But he lost his fight

P. M. Miskell, general manager Empire Refineries Inc., Tulsa, Re-elected vice-president of W. P. R. A.

and he says the western refiners will lose the fight again this year unless they send a strong battalion of competent fighters down to Washington to do battle.

"On the Federal Specifications Board and on Committee D-2 we are outnumbered by eastern technologists representing the seaboard refining companies. Their viewpoint is entirely different from ours, because they have to sell very little of their gasoline to jobbers who demand the quality called for in the government specifications," said Mr. Miller.

"I went before the meeting last summer and I was like one of these dolls in a baseball-throwing joint. I would get up and they would knock me down, I would get up again and they would knock me down again, and so on. No one man can go down there, however able he may be, and prevail against the different viewpoint that prevails with the majority of the committee."

Mr. Miller urged that the companies who have competent technologists capable of impressing the viewpoint of the western refiners on the committee, send them down to Washington to appear and make their fight before the Federal Specifications Board at its meeting April 4.

"Numbers are necessary as well as ability," said Mr. Miller, "because we are opposed by numbers. We ought to have four or five or six or even more men on the job. Paying their traveling expenses will be cheap compared with what the western refiners will lose in gasoline yield if the present specifications still stand.

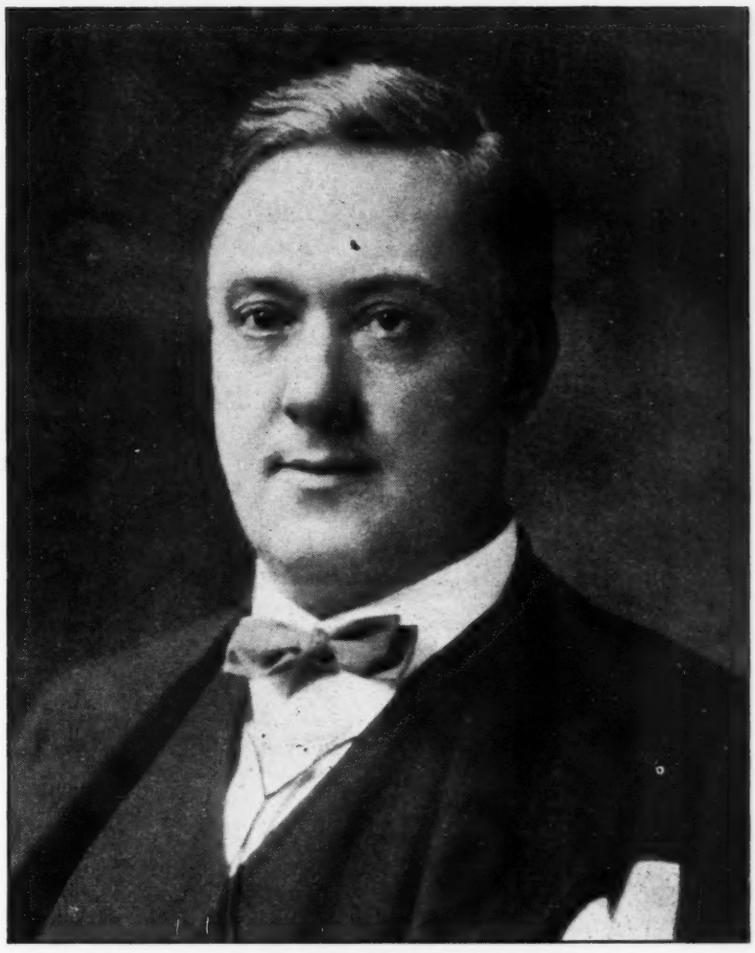
Government Specifications Prevail

Mr. Miller pointed out that while the government specifications are legally binding only on products purchased for the use of the government, they quickly become standard in the trade and especially form the basis for state, city and other specifications when these are laid down by local legislative bodies.

"If you say, 'we are not much interested in this question because we sell very little of our stuff to the government,' you are fooling yourself because most of the gasoline you sell will have to conform to the specifications, because the government standards for petroleum products are quickly taken up everywhere because, up to now, they have represented exceedingly fair and reasonable standards."

As the matter stands now, the speaker pointed out, the western refiners who have to sell the greater part of their gasoline to the jobbers, are getting between one and two per cent less gasoline from their crude than they got when the distillation test was made with the cotton on the bulb.

He suggested that the refiners ask for an increase of four degrees in the distillation points throughout the range. That would bring the government specifications to: Initial, 135 F; 90 per cent point, 396 F and end point 441 F with the other points specified raised correspondingly.



George D. Locke, vice president Barnsdall Refining Co., Chicago Re-elected vice president of W. P. R. A.

Another question that is to come before Committee D-2 is that of barometric correction of distillation range. Considerable trouble has been caused because of the changing distillation range of gasoline at different altitudes. Mr. Miller pointed out that, say 375 end point gasoline, shipped from the Mid-Continent for export would be rejected at the Gulf because it would have an end point three or four degrees higher.

It is known of course that the boiling points of liquids are calculated at sea level where the atmospheric pressure is 760 millimeters of mercury. Thus, the boiling point of water as sea level under the pressure named, is 212 F.

Pressure Retards Boiling

It is also well known that the greater the pressure the more boiling is retarded and the higher the boiling point. It is the same with gasoline as with water. An illustration is that the application of pressure on a cracking still is for the purpose of raising the boiling point so that the product in the still does not boil or vaporize until the cracking temperature is reached.

At an altitude above sea level, the pressure is less and the boiling point consequently lower. The higher the elevation the less the pressure and consequently the lower the boiling point. For this reason, when gasoline is made in Oklahoma, where the altitude above sea level is around 1100 feet, the atmospheric pressure is around 740 millimeters of mercury instead of 760 and therefore the boiling point is lower by several degrees than it will be when it reaches the Gulf coast, which is at sea level and where the atmospheric pressure of 760 millimeters prevails.

Mr. Miller recommended that the boiling point corrections be made to an atmospheric pressure of 735 millimeters because, he said, that would put the Oklahoma and Kansas refiners pretty nearly on an even basis. This is to be taken up by a committee representing the western refiners at the meeting of Committee D-2 early in April, to be held in Pittsburgh.

Officers and Directors

(Continued from page 35)

C. L. Mayhall, Imperial Refining Co., Tulsa.

D. W. Moffitt, Cosden & Co., Tulsa.

C. C. Peppers, Peppers Gasoline Co., Enid, Okla.

O. D. Robinson, Transcontinental Oil Co., Pittsburgh.

H. A. Trower, Phillips Petroleum Co., Bartlesville, Okla.

J. L. Walsh, Continental Oil Co., Kansas City.

G. G. Woodruff, Roxana Petroleum Corp., St. Louis.

L. R. Crawford, Producers & Refiners Corp., Denver.

Registrations at Western Refiners Convention

A

Algiers, W. J.	Transcontinental Oil Co.	Tulsa
Applegate, F. D.	Marland Refining Co.	Ponca City
Allshouse, Fred	Wheeling & Lake Erie Ry.	St. Louis
Atkins, W. T.	Skelly Oil Co.	K. C.
Allee, Geo. S.	Missouri Oil Jobbers	K. C.
Anderson, T. C.	American Car & Fdy. Co.	St. Louis
Allen, Lew	Empire Refineries, Inc.	K. C.
Ashton, H. T.	Lubrite Ref. Co.	St. Louis

B

Butler and wife, O. G.	K. C. Refining Co.	
Buchanan, D. E.	Chestnut & Smith Corp.	Tulsa
Bradshaw, A. E.	1st Nat'l Bank	Tulsa
Buckley, Neil	Carson Petroleum Co.	Tulsa
Bowman, F. H.	Pure Oil Co.	Columbus, O.
Brown, L. W.	Fisher Governor Co.	Marshalltown, Ia.
Boyd, W. R., Jr.	American Pet. Institute	New York
Brin, Raymond	Primrose Pet. Co.	
Berger, Ed	Jenkins Process	Chicago
Brown, W. Z.	Producers & Refiners	Denver
Bourque, A. V.	Assn. of Nat. Gas. Mfgrs.	Tulsa
Bayer, Lloyd F.	Tidal Refining Co.	Tulsa
Ballard, A. M.	Sun Co.	Tulsa
Bolene, V. E.	Bolene Refining Co.	Enid
Borgolte, E. F.	Atlas Pet. Co.	K. C.
Burke, F. E.	Chestnut & Smith	Tulsa
Brin, S. E.	Primrose Pet. Co.	Dallas
Burchett, B. J.	Shaffer Oil & Ref. Co.	Chicago
Brandli, H. E.	Carson Pet. Co.	Chicago
Butcher, H. E.	Empire Gas & Fuel Co.	Bartlesville
Bush, B. E.	Diamond Ref. Co.	K. C.
Bradley, C. F.	Gulf Refining Co.	Annandale, Minn.
Bunn, F. L.	Tidal Refining Co.	Tulsa
Bennette, Howard	W. P. R. Ass'n.	Tulsa
Barnes, G. A.	White Eagle O. & R. Co.	K. C.
Brown, J. J.	Vickers Pet. Co.	Potwin, Kan.
Blakely, E. H.	Tidal Refining Co.	Omaha
Becker, Leod D.	Oil Trade Journal, Inc.	New York

C

Copeland, D. David	Gen. Amer. Tank Car Corp.	Chicago
Cannaday, A. E.	Foamite-Childs	K. C.
Carson, J. M.	Cosden Sales Corp.	Chicago
Claiborne, E. C.	Derby Oil Co.	Wichita
Campbell, Mrs. J. H.		Chicago
Collings, W. A.	Collings Calif. Clay Co.	Los Angeles
Cowles, L. R.	White Eagle O. & R. Co.	K. C.
Collins, Thos. P.	Industrial Pet. Corp.	Chicago
Creel, M. D.	Marland Ref. Co.	Ponca City
Calhoun, S. L.	Oil Trade Journal	Tulsa
Campbell, W. E.	Panhandle Ref. Co.	Wichita Falls
Campbell, J. H.	Industrial Pet. Corp.	Chicago
Calvert, C. C.	Rock Island Ref. Co.	Duncan
Cahoon, C. W. Jr.	Carson Pet. Co.	Dallas
Casey, John E.	Acme Tank Car	Coffeyville
Conway, P. A.	W. P. R. Ass'n.	Tulsa
Collins, Sam	Marland Ref. Co.	Ponca City
Campbell, C. H.	Lone Star Gas Co.	Dallas
Cahoon, C. W.	Cities Serv. Exp. Oil Co.	New York
Cordell, O. L.	Waite Phillips Co.	Tulsa
Cullinan, H. J.	Petroleum Iron Works	Houston
Camp, H. W.	Empire Refineries	Tulsa
Craig, G. E.	Miller Petroleum Co.	K. C.

D

Davis, William A.	Miller Pet. Co.	
Davis, Arthur L.	Empire Refineries, Inc.	Okmulgee
Dunn, Louis M.	Elgin-Joliet & E. Ry. Co.	Chicago
Durkee, Chas. C.	White Eagle O. & R. Co.	Augusta
Dunn, Mrs. H. P.		Chicago
Davis, W. F.	Orient Pet. Co.	Wichita Falls
Deacon, A. W.	St. Louis Surfacer & Pt. Co.	St. Louis
Dowd, C. F.	Tidal Ref. Co.	Tulsa
Driscoll, H. D.	Okla. Refiners Ass'n.	Oklahoma City
Dunn, H. B.	Advance Pet. Corp.	Chicago
Davey, T. N.	Atlantic Oil Prod.	Dallas
Dietz, W.	Mound City Chemical	St. Louis
Davis, Walter	Detroit Graphite Co.	Detroit
Dow, Fayette B.	W. P. R. A.	Washington
Danielson, Carl A.	Union Draft Gear Co.	Chicago
Dean, D. A.	Oil State Ref. Co.	Enid
Detwiler, J. G.	The Texas Co.	Houston
Downs, H. P.	H. P. Downs Oil	Tulsa
Davis, H. K.	W. P. R. A.	Tulsa

E

Eubank, A. D.	Diamond Ref. Co.	K. C.
Emig, F. H.	Nat'l Pet. Marketers Ass'n.	Chicago
Erter, John H.	Anderson-Prichard Corp.	Okla., City
Evans, H. A.	Phillips Pet. Co.	Bartlesville
Elliott, A. G.	Pure Oil Co.	Tulsa
Esbaugh, F. A.	Waite Phillips Co.	Tulsa
Frank Eldridge	Marsh & McLennan, Ins.	Chicago
Eagle, H. H.	Cities Serv. Exp. Oil Co.	New York
Edmonds, C. H.	The Power Spec. Co.	New York
Egan, R. W.	Oil & Gas Journal	Tulsa
Edgar, T. J.	The Freeman Co.	Tulsa
Ely, A. L.	Empire Gas & Oil Co.	Bartlesville

F

Freck, S. G.	Foamite-Childs Co.	K. C.
Forbes, Mrs. Robert		K. C.
Freeman, Edwin J.	Acme Pet. Co. & C. A. Gustafson	Tulsa
Forbes, Robt. M.	Acme Pet. Co.	K. C.
Filer, Mrs. W. J.		St. Louis
Francis, C. K.		Tulsa
Foster, M. E.	Phillips Pet. Co.	Bartlesville
Fischer, F. W.	Guarantee & Liquid Meas. Co.	Rochester
Filer, W. J.	Roxana Petroleum Co.	St. Louis
Felt, H. E.	American Pet. Prod. Co.	Tulsa
Fritz, Edw. P.	Atlantic Oil Prod. Co.	Tulsa

G

Goebel, P. W.	K. C. Refining Co.	K. C. Kan.
Galvin, J. E.	Ohio Steel Foundry Co.	Lima, O.
Grassle, F. R.	Hills-McCanna	Chicago
Graver, P. S.	Graver Corp.	E. Chicago, Ind.
Goebel, P. W. Jr.	K. C. Refining Co.	
Goebel and wife A.Frank	K. C. Refining Co.	
Goebel, Mrs. E. W.		K. C.
Gent, L. W.	Minn. Northfield & So. Ry.	K. C.
Griswold, Mrs. E. F.		Wichita Falls
Granger, Gordon	Waite Phillips Co.	Okmulgee
Greene, L. A.	Radio Petroleum Co.	Ft. Worth
Gray, P. R.	The Gray Processes Corp.	Newark, N. J.
Gray, A. McD.	The Gray Processes Corp.	Newark, N. J.
Goebel, E. W.	K. C. Refining Co.	K. C.
Gissler, F. G.	Conley Tank Car Co.	Dallas
Gray, John L.	Shaffer O. & Ref. Co.	Tulsa
Griswold, E. F.	Griswold Oil Corp.	Wichita Falls
Gibson, H. C.	Carson Petroleum Co.	Pittsburgh
Garnett, R. D.	New Orleans Ref. Co.	New Orleans
Garrett, A. F.	Tidal Refining Co.	Tulsa
Gerteis, C. E.	White Star Ref. Co.	Wood River, Ill.
Garrabrant, A. A.	Atlantic Refining Co.	Philadelphia
Graffis, Herb	Petroleum Age	Chicago
Goller, G. C.	Lubrite Refining Co.	St. Louis

H

Hamilton, W. B.	Texhoma O. & Ref. Co.	Wichita Falls
Howe and wife, J. P.	K. C. Refining Co.	K. C.
Hicks, C. D.	Missouri Pacific	St. Louis
Hamilton, G. H.	Missouri Pacific	K. C.
Howe, Mrs. J. P.		K. C.
Henderson, C. L.	Vickers Pet. Co.	Wichita
Hess, E. W.	Rankin-Benedict Co.	K. C.
Hopp, F. T.	Skelly Oil Co.	Tulsa
Harp, Joe	Champlin Ref. Co.	Enid
Harcourt, G. N.	M. W. Kellog Co.	K. C.
Hayes, W. J.	Ohio Steel Fdy. Co.	Springfield, O.
Harris, D. W.	Empire Refineries	Bartlesville
Holland, C. J.	American Ref. Co.	Wichita Falls
Harrison, W. M.	Star Ref. & Pro. Co.	Fort Worth
Hickox, L. C.	Paramount Pet. Co.	K. C.
Helling, T. A.	Eldorado Ref. Co.	Eldorado
Hamilton, Hugh H.	Hamilton Oil Co.	Youngstown, O.
Hartenbower, G. C.	Hartenbower Auto Supply	Eureka, Kans.

J

Jackson, V. E.	Iowa Pk. Prod. & Ref. Co.	Wichita Falls
Jackson, Mrs. V. E.		Wichita Falls
Jacobi, W. P.	Wadhams Oil Co.	Tulsa
Jonscher, H. F.	K. C. Refining Co.	K. C.
Jones, Elliott	Elliott Jones & Co.	San Antonio
Jones, Roy B.	Panhandle Ref. Co.	Wichita Falls
Jones and wife, Frank E.	K. C. Refining Co.	K. C.
Jouett, Chas. A.	Ashland Refining Co.	Ashland, Ky.

K

King, J. A.	Union Draft Gear	Chicago
Kennedy, J. V.	Pere Marquette	K. C.
Knapp, Wm. A.	Butler Mfg. Co.	K. C.
Klappenbach, E.	Oil & Gas Journal	Chicago
Keller, C. A.	Derby Oil Co.	Wichita
Klingensmith, W. W.	Transcontinental Oil Co.	Pittsburgh
Kleespie, M. E.	Waite Phillips Co.	Tulsa
Knapp, Wm.	Skelly Oil Co.	K. C.
Kinney, Geo. H.	K. C. Structural Steel Co.	Dallas

L

Lyon, Dolph	Pere Marquette	K. C.
Leitzell, F. O.	Blaw-Knox Co.	Pittsburgh
Lilley, J. B.	Jas. B. Berry's Sons	Tulsa
Lingenfelter, L. M.	Petroleum Marketing Co.	K. C.
Landsittel, A. E.	Globe Oil & Ref. Co.	Tulsa
Long, E. W.	E. W. Long Co.	K. C.
Laessig, C. H.	Automobile Gaso. Co.	St. Louis
Lightner, O. D.	Sherwin-Williams Pt. Co.	K. C.
Locks, Geo. D.	Barnsdall Ref. Co.	Chicago
Little, Wm. H.	National Pet. News	Tulsa
Lanier, J. F.	Skelly Oil Co.	Eldorado
Laudermilk, A. S.	American Can Co.	No. K. C.
Layne, W. R.	Byron Jackson Pump Co.	Berkley, Calif.
Landaburu, Dr. J. L.	Argentine Govt. Oil Fields	N. Y.
Long, W. C.	Golden Rule Ref. Co.	Wichita
Leland, H. R.	H. R. Leland, Inc.	Tulsa

M

Moore, F. J.	Hughes & Co.	Chicago
McMahon, F. E.	Caddo-Central O. & R.	Shreveport
Mary, E. J.	Clayton Oil & Ref. Co.	Dallas
McIntyre, Ed. F.	International Pet. Exp.	Tulsa
Mott, Mrs. E. L.		K. C.
Miller, Mrs. Walter		Ponca City
Martin, Mrs. N. H.		Wichita Falls
Miller, Miss Inez		K. C.

(Continued from page 27)

Monark Gasoline Co.
Manhattan Oil Co.
Miller Petroleum Co.
National Zinc Co.
Nichols Wire Co.
Nourse Oil Co.
Paramount Petroleum Co.
Petroleum Oils Corp.
Pyrene Manufacturing Co.
Penn Lubric Oil Co.
Petroleum Marketing Co.
Rothschild & Sons.
Roxana Petroleum Co.
Sewall Paint & Glass Co.
Standard Steel Works.
Spencer Petroleum Co.
Sherwin-Williams Paint Co.
Skelly Oil Co.
Throop Petroleum, J. V.
Thompson Hayward & Schlueter.
United Iron Works Co.
Vickers Petroleum Co.
Wayne Tank & Pump Co.
Whitelaw Bros. Chemical Co.
Winters Oil Co.
Witte Engine Co.
White Eagle Oil & Refining Co.
Woolf Brothers.

Registrations at Western Refiners Convention—(*Continued*)

M

Miller, Mrs. J. H.		K. C.
Moon, Mrs. R. M.		Tulsa
Musgrave, Mrs. C. R.		Bartlesville
McCarthy, Daniel F.	Prod. & Ref. Corp.	Denver
McCarthy, Mrs. Daniel F.		Denver
McClure, L. C.	Nyanza Ref. Co.	Oklahoma City
Mandelbaum, M. R.	Gray Process Corp.	Newark, N. J.
McKirahan, P. P.	Continental Tank Car	Tulsa
Miller, Harry I.	Detroit Graphite Co.	Chicago
Morrison, A. F.	Kanotex Ref. Co.	Arkansas City
McLean, H. G.	Empire Co. Comptroller	Tulsa
Moon, R. M.	Imperial Oil Mark. Co.	Tulsa
Morris, C.	Oil & Gas Journal	Tulsa
Mulroy, H. C.	Mulroy Oil Co.	Ponca City
Marner, C. L.	Graver Corp.	Tulsa
Murphy, S. E.	Empire Refineries	Tulsa
Miller, H. F.	Carter Oil Co.	Tulsa
Miller, J. H.	Miller Pet. Co.	K. C.
Martin, N. H.	Texhoma O. & R. Co.	Wichita Falls
Morrell, Dr. J. C.	Universal Oil Prod. Co.	Chicago
Musgrave, C. R.	Phillips Pet. Co.	Bartlesville
Moody, W. E.	Shaffer O. & Ref. Co.	Cushing
Mott, E. L.	Deepwater Oil Ref. Inc.	Houston
Majewski, B. L.	Shaffer O. & Ref. Co.	Chicago
Miller, F. L.	Miller Pet. Co.	K. C.
McReynolds, H. L.	White Eagle O. & Ref. Co.	K. C.
Mayhall, C. L.	Imperial Ref. Co.	Tulsa
Miller, Walter	Marland Ref. Co.	Ponca City
Marshall, E. C.	White Eagle O. & R. Co.	K. C.
Malloy, Pat	Constant Ref. Co.	Tulsa

N

Nation, A. W.	Roxana Pet. Corp.	K. C.

O

Oakley, V. R.	Waite Phillips Co.	Wichita

P

Poole, F. M.	Brown Instrument Co.	Tulsa
Pullar, H. B.	White Star Ref. Co.	Detroit
Pielsticker, Mrs. F. A.		Eldorado
Perdew, Mrs. W. E.		Wichita
Purcell, J. J.	Lake Pet. Co.	Chicago
Powell, David	Detroit Graphite Co.	K. C.
Peppers, C. C.	Peppers Gas. Co.	Enid
Patterson, R. W.	No. American Car Co.	Tulsa
Pielsticker, F. A.	Skelly Oil Co.	Eldorado
Patton, I. H.	Lorraine Ref. Co. & Western Oil Corp.	Tulsa
Peters, W. A. Jr.	E. B. Badger Co.	Boston
Powell, J. D.	Skelly Oil Co.	Eldorado
Perdew, W. E.	Derby Oil Co.	Wichita
O'Meilia, W. E.	Westcott & Greis	Tulsa
Overfell, G. G.	Phillips Pet. Co.	Bartlesville
Pape, W. B.	Elliott Jones & Co.	San Antonio
Platt, W. C.	National Petroleum News	Cleveland

R

Rohde, P. H.	Standard Oil of Kan.	Neodesha, Kan.
Rice, Wayne P.	Marland Ref. Co.	Ponca City
Billingslea, M. G.	White Star Ref. Co.	Detroit
Ryberg, R. J.	Argentine Govt. Oil Fields	New York
Rogan, A. R.	Mo. Pac.	St. Louis
Reed, Al H.	American Paint & Sup.	Dallas
Reed, Roy S.	Kanotex Ref. Co.	K. C.
Rhoy, T. F.	Texhoma Oil & Ref. Co.	Omaha
Randolph, L. S.	Randolph Pet. Co.	Tulsa
Rice, C. W.	Vickers Pet. Co.	Wichita
Robinson, O. D.	Transcontinental Oil Co.	Pittsburgh
Reintjes, Geo. P.	Geo. P. Reintjes Co.	K. C.
Ridenour, E. M.	Nyanza Ref. Co.	K. C.
Rose, Robt.	Gen'l Amer. Tank Car Corp.	Tulsa
Rankin, Mrs. R. D.		K. C.
Roper, E. E.	Miller Pet. Co.	K. C.
Ritter, E. H.	W. P. R. A.	Tulsa

S

Skyrm, H. D.	Pet. Iron Works Co.	Tulsa
Sharpe, R. J.	Gen. American Tank Car Corp.	Tulsa
Singler, F. A.	Standard Tank Car Co.	St. Louis
Smith, O. C.	Skelly Oil Co.	Eldorado
Simmons, Mrs. L. B.		Duncan
Spencer, Frank E.	Spencer Pet. Co.	Chicago
Snedden, Geo. W.	Lorraine Ref. Co.	Tulsa
Stanford, L. V.	Sinclair Ref. Co.	New York
Siebold, E. W.	Roxana Pet. Corp.	St. Louis
Summerwell, L. D.	K. C. Refining Co.	K. C.
Shoemaker, H. L.	Standard Oil Co.	New York
Simmons, L. B.	Rock Island Ref. Co.	Duncan
Scott, W. L.	Texhoma Oil & Ref. Co.	Wichita Falls
Schramm, Wm. C.	Mound City Chemical	St. Louis
Seideman, C. L.	Imperial Ref. Co.	Tulsa
Smart, H. T.	Miller Pet. Co.	Wichita Falls
Schropfer, A. M.	Vickers Pet. Co.	Whitewater, Kan.
Sindel, A. T.	A. T. Sindel Co.	K. C.
Stewart, Edw. E.	Crystal Pet. & Ref. Co.	Wichita Falls
Smith, A. A.	Monark Gas & Oil Co.	K. C.
Slocum, G. A. R.	Skelly Oil Co.	Eldorado

T

Tydeman, F. W. L.	Roxana Pet. Corp.	Wood River
Trisler, J. R.	Imperial Ref. Co.	Tulsa
Tigerman, J. G.	Republic Flow Meters	K. C.
Tansel, R. B.	Randolph Pet. Co.	Tulsa
Taxman, Milo W.	Atlas Pet. Co.	K. C.
Truesdell, Paul	Nat'l Petroleum News	Cleveland
Thompson, F. S.	Constantin Ref. Co.	Tulsa
Thompson, T. F.	Northland Oil Co.	Chicago
Tuttle, Malcolm H.	Continental Oil Co.	Denver
Thomason, L. E.	Marland Ref. Co.	K. C.
Throop, Mrs. J. Vail		K. C.
Triplett, Grady	Gulf Pub. Co.	Houston
Trisler, Mrs. J. R.		Tulsa
Trimble, R. R.	Mo. Pac.	Tulsa
Tracey, W. A.	Sinclair Ref. Co.	Dallas
Talbot, A. G.	Advanced Pet. Corp.	Chicago

V

Verschoyle, C. H.	Rock Island Ref. Co.	Duncan

W

Whitaker, F. S.	Garber Ref. Co.	Tulsa
Whitaker, J. H.	Garber Ref. Co.	Tulsa
Westine, A. J.	Western Maryland	K. C.
Wellman, Frank E.	K. C. Refining Co.	K. C.
Wheatley, Tom	Wheatley Mach. Wks.	K. C.
Willson, C. O.	Oil & Gas Journal	Tulsa
Werkheiser, R. S.	Skelly Oil Co.	K. C.
Ward, O. B.	Battenfeld B. & O. Co.	K. C.
Woodruff, G. G.	Roxana Petroleum Corp.	St. Louis
Walsh, Joe L.	Continental Oil Co.	K. C.
Williams, H. U.	American Can Co.	No. K. C.
Waters, M. F.	Smith Separator Co.	Tulsa
Winters, Arthur	Kanotex Ref. Co.	Salina
Wood, A. F.	Chestnut & Smith Corp.	Tulsa
Winget, Rex H.	Cushing Ref. & Gas. Co.	Cushing
Williams, G. B.	Johnson Oil Ref. Co.	Chicago
Wixson, D. C.	Prod. & Ref. Corp.	Tulsa
Watts, H. G.	Derby Oil Co.	Wichita
Williams, Neil	Oil & Gas Journal	Tulsa
Winn, A. F.	Skelly Oil Co.	Eldorado
Widener, Geo.	National Pet. News	Cleveland
Willis, C. A.	Empire Refineries	Tulsa
Waser, Dr. R. H.	Roxana Pet. Co.	Ark. City
Davis, Wm. G.	Miller Pet. Co.	K. C.
Waldrefs, Dr. M. N.		K. C.

LATE REGISTRATIONS

Griffith, M. E.	W. P. R. Ass'n.	Tulsa
Sapp, E. E.	Derby Ref. Co.	Wichita
Waring, E. G.	Gulf Coast Lines	K. C.
Jones, Albert R.	Manhattan Oil Co.	K. C. Kans.
Shephard, B. G.	Interstate Oil Co.	K. C.
Jenkins, U. S.	Jenkins Pet. & Process Co.	Chicago
Blanton, J. B.	K. C. Southern Ry.	Tulsa
Longshore, J. S.	Sunflower Oil Co.	Topeka
Dowling, J. J.	Cosden Sales Corp.	K. C.
Lynch, W. S.	Petroleum Mkt. Co.	K. C.
Kendrick, Clark	Kendrick Oil Co.	Tulsa
Anson, I. A.	Altitude Pet. Co.	Tulsa
Spear, Roy E.	Continental Oil Co.	K. C.
Irwin, R. R.	White Eagle O. & Ref. Co.	K. C.
Moore, Dale W.	Dale W. Moore Co.	Tulsa
Emery, O. B.	Tagliabue Mfg. Co.	Brooklyn
Smith, K. J.	Skelly Oil Co.	Eldorado
Hopkins, A. S.	Standard Oil Co. Kans.	Neodesha
Jacobson, Mrs. E. F.		Tulsa
Jacobson, E. F.	Nickel Plate R. R.	Tulsa
Derby, A. L.	Derby Oil & Ref. Co.	Wichita
Warner, C. H. Jr.	Altitude Petroleum Co.	Chicago
Chatfield, J. C.	Nat'l Petroleum News	Tulsa
Klein, J. W.	Midland Valley Ry.	Tulsa
Klein, Mrs. J. W.		Tulsa
Jensen, H.	Spencer Pet. Co.	Chicago
Moore, Mrs. Dale W.		Tulsa
Marshall, Mrs. Emery		K. C.
Leitzell, Mrs. F. O.		Pittsburgh
Boyden, W. A.	Roxana Pet. Corp.	St. Louis
Caldwell, Paul B.	Roxana Pet. Corp.	K. C.
Enloe, Justin	Roxana Pet. Corp.	K. C.
Landsittel, Mrs. A. E.		Tulsa
Airey, Richard	Asiatic Pet. Co.	New York
Samuels, Sidney		Fort Worth
Koontz, J. R.	Frisco R. R.	St. Louis
Cornatzer, J. N.	Frisco R. R.	St. Louis

Treating of Light Distillates; Some of the Methods Employed

By Dr. C. K. Francis
General Manager, The Braden Co., Tulsa

Delivered at the W. P. R. A. Convention, Kansas City, March 4

AMONG the foremost problems of the petroleum industry there is probably none more important than that of purity. In using the word purity I refer specifically to the quality of its commercial products. The remarkable increase in demand, within the last 20 years, for all petroleum products had been so great that the matter of quality up to the present time has, to some extent been overlooked.

This has been especially true of gasoline, which, from a waste product, has become the controlling factor in petroleum refining. The foremost question before the petroleum refiners twenty-five years ago was—what shall we do with this light stuff? Its name was not fixed; some called it naphtha, others gasoline. The question was changed 15 years later to—how can we produce more gasoline?

Several methods for the increase of volume of gasoline were perfected with such success that a demoralization of the market resulted. This condition is no doubt passing but the demand for quality has steadily advanced. The specifications controlling quality have become more numerous and exacting each year. From gravity and color specifications we have advanced to distilling with fractional percentages, initial, end point, vapor tension, gum forming and corrosion tests.

You will recall that a short time ago, when the market was short on gasoline, almost anything in the gasoline class could be sold. The refiners were rushed and the consumer was not critical.

Competition Improves Quality

The attitude of some refiners was that the public could not require them to make a uniform product, as to quality. This position has been found to be erroneous, and competition is rapidly compelling better products to be marketed. What may be said of gasoline applies equally as well to kerosene and other petroleum products.

The refinery operations, which are confined to purification, after the separation from the crude, are filtering and treating. The treating process may, and often does, include more or less filtering, so for the purpose of this paper, filtering shall be considered a part of the treating operation. The purification of petroleum distillates has from the very early days of the industry been accomplished by the use of acid and alkali—usually sulfuric acid and caustic soda.

When oil was discovered in Ontario and northern Ohio, about 1868, the ordinary refining treatment with acid failed. The products from this oil had a very offensive odor, due to the large quantity of sulfur it contained, and the crude was commonly known as skunk oil. Pennsylvania crude was then selling for $2.25 a barrel, but the price of the Ohio crude rapidly declined to 10 cents and much of it was given away. No satisfactory method for purifying the products from this oil was found until about twenty years later when Frasch perfected the copper oxide method. This method was probably the first to successfully introduce treating material into the still.

The usual method for treating gasoline, kerosene, lubricating oils and other products is commonly called the agitator process. The material is pumped into a specially constructed tank, which is provided with means for mixing the liquids, and while formerly paddles and other devices were used, it is now the common practice to mix or agitate by means of compressed air. While the liquid is being agitated, sulfuric acid is added.

Acid Added During Agitation

The quantity of acid may vary from a fraction of a pound to six pounds per barrel of the product treated, when treating benzine and kerosene. It may be necessary to use very much more for certain grades of lubricating oils. The quantity of acid varies according to the material and the specific results desired.

The liquid is washed free from acid by showering water through it. Then, to be very certain that no trace of acid remains, and to remove some sulfur compounds, it is washed with an alkaline solution of caustic soda. It is often necessary to add lead and sulfur. The alkaline treatment is commonly known as sweetening. I shall speak of this in more detail. After the acid and alkali treatment, the product may be ready for shipment, and it is usually necessary to re-distill it.

There are several combinations for applying the agitator process. I have simply given a brief outline of the general process. The method has had practically no satisfactory scientific explanation until quite recently. It was known that a sweet gasoline would go off test during storage. A good doctor test oil would become sour on re-running. Often a treated product would contain more sulfur than the crude from which it was made.

Some objectionable results have been caused by under treatment with acid. This is not often true, because the treater believes in adding plenty of acid and almost constant supervision is required to keep down the acid expense.

Undertreating

An oil undertreated with acid does not stand up, and much of the subsequent treatment is nullified. Consequently, the addition of excessive quantities of acid is really tempting. Hydrogen sulfide, mercaptans, and sulfur dioxide are usually the sulfur compounds responsible for the bad odor of certain gasolines and kerosenes. This may be particularly true of undertreated fractions, those which have been re-run, and pressure still products. Hydrogen sulfide is a decomposition product of many animal substances. It is responsible for the bad odor of a stale egg. It finds its way into crude oil, probably through the decomposition of organic material when the petroleum was formed. It is a gas and therefore passes off from the crude into the lighter distillates at low temperatures.

The action of sulfuric acid on some sulfur compounds produces hydrogen sulfide. The proper contact with caustic soda and alkaline lead solution changes it into other substances easily removed.

However, some sulfur compounds do not react to the doctor test, so a product may contain sulfur and yet be sweet. Some of these substances are broken up by heat, and it is these that are often the cause of a sweet product becoming sour on re-running. A proper study of the crude and the products from it, aids in formulating the required treating methods. The preparation of gasoline and kerosene by means of pressure stills introduced a new and interesting treating problem.

It was found that pressure distillates did not respond to the ordinary methods used for treating. The gasoline and kerosene was often of poor color, had a bad odor, contained an excess of sulfur, gum forming substances, frequently showed traces of acid, and went off color in storage. The character of the original crude and the product charged to the stills, of course influence the properties of the distillate. Many combinations of acid and alkaline treating, together with distillation, and filtering have been developed.

Alkaline substances, introduced into the re-run still with the pressure distillate, have been found to be successful

in many instances. Such material should decompose or evaporate at a relatively low temperature. Caustic soda, for example, has not proven satisfactory because the solid caustic is deposited in the still and causes damage to the bottom through the formation of hot spots.

Some refineries apply the full acid treatment, follow with a slightly alkaline wash and then re-run. The sweetening stage of the treating is applied to the overhead, which has been brought to boiling point specifications. This is logical, because when a petroleum product is fully treated and sweet to the doctor test, and then distilled, it will often become sour.

This I have explained by the fact that many sulfur compounds decompose at low temperatures, 250°-350° F. A substance which is not darkened by the doctor solution will, when decomposed, form other substances which do react with the doctor solution.

Therefore, when a distillate is to be re-run, it is not advisable to apply the treating process in full before re-running. It is usually better to give the full acid treatment, follow with a weak alkaline wash, to prevent any acid going into the still, then re-run. The re-run distillate should then be sweetened with plain alkali or with the lead-sulfur as necessary.

The pressure still products are better treated in closed agitators and preferably of the continuous type, because they are more difficult to purify. Those color and gum forming substances are not present in the ordinary crude fractions.

They are more easily produced in the presence of light and air than in darkness and when care is observed to exclude the light, better results are obtained. The closed treating unit is to be preferred for the additional reasons of increased volume and less loss by evaporation. A continuous treater may be easily made from pipe and fittings. They have been found so satisfactory, and so much superior to the open agitator, that this, well known symbol of petroleum refining, will probably soon be discarded by many refiners.

Continuous Stream Saves Money

The continuous movement of the stream from the still until ready for shipment is to be desired. This, when accomplished, means a great saving in operating costs. The sweetening of the light stream can be done by permitting it to pass through an alkaline solution in a closed treater on its way to the storage tank.

When such treaters are arranged in pairs, there need be no loss of time when one is shut down for cleaning or repairs. Dilution of the treating chemicals from water, coming over with the distillate, will be prevented if a separating trap is placed in the condenser coils and thus direct the hot water to a soft water tank.

An advance in treating methods has been made in the so-called contact filtering process. This method has employed a special clay, also a very fine fuller's earth is being used. It is especially applicable to lubricating oils but no doubt may be applied with some modifications to kerosene and other light fractions.

The contact process consists, briefly, in agitating the lubricating oil with the fine clay and acid at an elevated temperature in a closed tank. The mixing is done by paddles or some stirring device other than air. After a slight settling, the clay is removed by passing the oil through plate filters.

A step toward complete refining of the fluid between the still and the storage tank, has recently been accomplished in the Barnsdall installation of the Gray process for treating pressure distillate. This process has an additional advantage in that it does away with the necessity for treating with sulfuric acid, always an objectionable and troublesome substance to handle. It is claimed that the method produces a bright and clear product which is free from many of the objectionable substances found in the ordinary acid treated pressure still gasolines and kerosenes.

In conclusion it may be of some interest to present some of the chemistry of the treating process. I have stated that until recently no satisfactory explanation had been made of just what takes place. Investigations in the research laboratories of the Standard Oil Co. (Ind.) and the University of Pittsburgh, have given us some very illuminating information on the subject. The principal substances acted upon during treating are hydrogen sulfide, previously mentioned, and a class of bodies known as mercaptans. The mercaptans are oily liquids, not so easily removed as the gas. Before describing the various reactions I may illustrate, by reference to some of the better known substances, something of the nature of these bodies called mercaptans.

The carbon compounds, methane, ethane, propane, butane and similar substances are well known in the industry. Methane (CH_4) and ethane (C_2H_6) the most prominent parent substances responsible for numerous thousands of compounds, are also known as methyl hydride (CH_3H), and ethyl hydride (C_2H_5H) respectively. The ethyl part is known as a radical and may form part of the name of closely allied substances, methyl alcohol (CH_3OH) ethyl alcohol (C_2H_5OH), and ethyl ether [$(C_2H_5)_2O$] are examples. Water when written H-O-H shows its relation to hydrogen sulfide H-S-H. An alcohol is of the type R-OH; and ether R-O-R. As sulfide replaces oxygen in the water type substances it may do so in many compounds. The bodies R-SH are mercaptans, and C_2H_5SH is ethyl mercaptan.

Where a mercaptan is treated with caustic soda the sodium mercaptide is formed and as it is soluble in oil the mere addition of caustic soda does not sweeten. However, the addition of the doctor solution, sodium plumbite, causes a precipitate and the clear oil is sweet, because the resulting lead product is dissoluble in the oil. When the heavy dark mass forms and is easily washed away with water, leaving a clear liquid, there is no need for adding sulfur, indeed additions of sulfur under such circumstances will simply dissolve sulfur in the final product and thus prove detrimental. This mistake is often responsible for a bad corrosion test shown by some gasoline.

Three Speakers Entertain Refiners at Banquet

Staff Special

KANSAS CITY, March 5.—The most successful convention the Western Petroleum Refiners Association ever held, ended with a banquet tonight in the Muehlebach hotel.

Pat Malloy, president of the Constant Refining Co. and former president of the Western Petroleum Refiners Association, was toastmaster. Richard Airey, president of the Asiatic Petroleum Co., was the first speaker.

The subject of his address was, "The Western Refiner—His Place in the Industry." Pointing out that the western refiner practically dominates the situation in the refining world, Mr. Airey warned against overexpansion and overproduction. He also took occasion to point out, as he did at a recent meeting of the Oil Trades Association of New York, that the export market is limited and that those who look upon foreign countries to absorb an enormous quantity of surplus American products will be disappointed.

He illustrated by figures that the western refiners alone, operating at the rate of operation of last year, could supply the entire needs of the European market by running their plants one day a week for export. He also stated that the export market is narrowing rather than widening as far as American products are concerned because of the increasing quantity of Russian crude that is being produced and because of the increasing invasion of Rumanian and Persian crude into the European market.

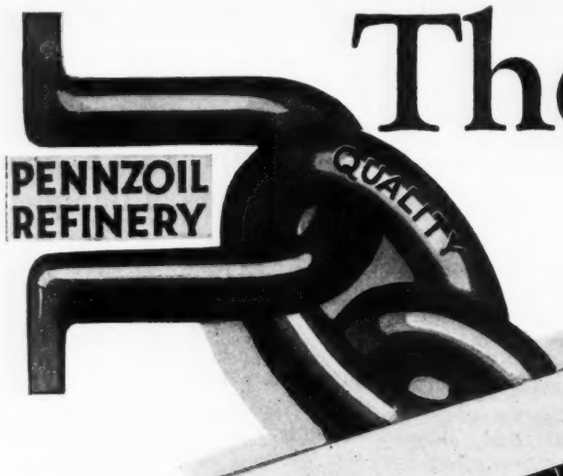
Sidney Samuels, a lawyer of Fort Worth, gave an address entitled, "Speeding the Motor" in which he condemned the meddling of the government in business, the waste of the taxpayer's money and the spreading of socialistic ideas and discontent.

The last speaker was Rev. Dr. Marion Nelson Waldrip of Kansas City. Under the title "Cheer in Business," he pleaded for more good fellowship in business, for a square deal and for less worry.

The toastmaster called upon the newly elected president, Mr. Pielsticker. Mr. Pielsticker expressed his appreciation of his reelection and thanked the members for their support during the past year. He declared that the convention just closing was the most successful in the history of the association. He disclaimed credit for this, however, and congratulated the visitors on their attendance at meetings and their interest in the program.

Music was furnished by the Lions Club quartet of Kansas City.

The Public



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THE SATURDAY EVENING POST
"You see, it's the quality of oil that comes OUT of your motor that tells whether good oil was put IN."
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WHEN you look at the oil that goes into your motor, you can only guess about its quality. But when you examine the oil that comes out of the motor after 500 or 1000 miles' use, you can tell beyond question whether or not it was good oil.
Just rub a drop of it between your thumb and finger. If the oil is burned and thin, it has broken down under motor heat. Such oil is dangerous. But if it has kept its body, if it is slippery, viscous and clings to your fingers, it is still good oil!
Try that test on Pennzoil after it has been in your motor 1000 miles, and on ordinary oils after 500—and the comparison will convince you that safe lubrication requires Pennzoil!
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OIL CITY, BUFFALO, LOS ANGELES
SUPREME PENNSYLVANIA QUALITY
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Reproduction of an advertisement in the March 14th issue of THE SATURDAY

Safety Work in Oil Refineries Depends Upon Educating Workmen

By Ray Miller

Safety Engineer, Marland Refining Co., Ponca City, Okla.

Delivered at Western Petroleum Refiners Association Convention, Kansas City, Mar. 4

IT IS generally agreed that the two real causes of accidents are the mechanical hazard and carelessness or inattention of the employee, therefore, the two outlets for safety work are the safeguarding of places of work and the creation and maintenance of interest in and attention to the daily occupation of the employee.

It is also generally agreed that only 10 to 25 per cent of our industrial accidents are traceable to the mechanical hazard while from 75 to 90 per cent are the result of unsafe practices. These figures are not only substantiated by a review of accident statistics but they also seem reasonable; in fact I am sometimes inclined to think that unsafe practices as a classification covers all accidents.

Why is it that some men can work a life time in the so-called most dangerous trades and never suffer an injury while others suffer several injuries each year from the most trivial causes? The answer is simply that some men know their jobs thoroughly and devote their entire attention to them while others go grumblingly and half heartedly through the daily routine with no other interest than the resulting periodical pay check.

In action—the one will squat down on his haunches, take a balanced grip on a heavy object and allow his strong leg muscles to do the lifting, the other will lean over and grasp the object with one hand and attempt to lift with a quick jerk—the result is a strain on the abdominal muscles and frequently a rupture and hernia.

Safe and Dangerous Firing

The one will fire a still or boiler by first making sure all valves are closed—insert his torch then turn on the gas or fuel into the firebox where it is immediately and properly ignited; while the other thinking of last night's wild party, absentmindedly turns on the fuel and starts leisurely to insert the torch—Bang!! an explosion and the fireman is severely burned.

The one dismantling an overhead scaffold removes the planking clinches or pulls out the nails and stores the lumber in its proper place and it is ready for use again—the other suffering a hangover headache, rips off a board and tosses it to the ground below. A passerby has his head in the way of its fall—or perhaps comes by later and steps on a protruding nail.

The idea that I am trying to convey to you by these pictures is that far greater results may be obtained by instilling safe habits and safe practices in the hearts and minds of your workmen than by installing the safety devices on the market around their places of work. Unfortunately, however, the fruits of safety teaching are very slow in maturing and there is a constant wasting of effort due to a changing personnel.

It is evident then that although safety education is by far the largest factor in accident prevention, we can't overlook safety devices in the campaign. In fact attention to mechanical hazards should be our first consideration not so much for the small percentage of accidents that can be thus avoided but for the example it sets to the working man.

Safeguards a Reminder

Safeguards are a constant reminder to the employee that his company believes that accidents can and should be prevented and is willing to spend money backing that belief. Indeed it is only after the mechanical safety program has been carried out that the maximum results can be expected of safety education.

As for guards and safety devices, they should be an integral part of the machine as it comes from the factory and not be fabricated in the shops of the purchaser at a much greater expense and installed so often in an unsatisfactory manner in which they only partially answer the requirements. In Oklahoma and other states there are boiler laws requiring that boilers must meet certain safety specifications before they can be shipped into the state, and that boilers already in use must be brought up to specifications in a reasonable period of time, or before they can be set in a new location.

Fortunately for the industry that law is good and has probably reduced boiler explosions, but unfortunately its very success has encouraged legislators and labor commissioners to experiment further and propose regulations that are of doubtful value and would place serious financial burden.

The industry in California has been in the throes of such legislation for the past several years. The cost to the operators has been enormous and the results rather disappointing. A few of the larger companies who are carrying on a safety educational program have reduced accidents but the state as a whole seems to have found very little relief.

This same idea has taken root in Oklahoma and for the past year the commissioner of labor has been at work on a safety code for the whole petroleum industry. His first draft was apparently taken largely from the California statutes, with some modifications to meet peculiar conditions and some additions based on statistics gathered by his department, and would have meant an expenditure of millions of dollars by Oklahoma operators.

Fortunately we had just organized the safety section of the Mid-Continent Oil & Gas Association and acting on the belief that accident prevention necessitated education rather than legislation, we held several meetings with the commissioner and succeeded in reducing the number of general orders from 116 to 57, and considerably modifying some of the 57.

Accident Prevention

When we have provided and arranged for the maintenance of a decent and safe place of work, then we are ready to cope with the larger problem of accident prevention—i.e. the selection and training of employees. In this field the employment office is the starting point. Labor turnover is a large factor in the results of accident prevention activities and at the employment office it should be determined whether or not an applicant wants steady employment or only a short time job to tide him over a dull period in some other trade. After meeting the requirements here the applicant should undergo a thorough physical and medical examination to determine if he is fit for the intended employment, or if he can be made so, by the correction of physical defects.

If the size of your organization does not warrant the employment of a full

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Miller to Manage Big Safety Campaign

KANSAS CITY, March 5.—Ray Miller, safety engineer of the Marland Refining Co., Ponca City, Okla., will immediately take charge of a comprehensive safety campaign for the oil industry, to be undertaken by the Mid-Continent Oil & Gas Association. Mr. Miller's paper on safety in oil refineries attracted much interest at the meeting of the Western Petroleum Refiners Association.

The Marland Refining Co. has consented to grant Mr. Miller a leave of absence to permit him to carry on the safety work for the association.

time physician, it is always possible to make arrangements so that you can get his services during certain hours of the day or certain days of the week. Bear in mind too that just as you would use the best physician in your community to serve you or your loved ones, so you are honor bound to procure the best man available to serve your employees.

When passed by the plant physicians, the man should then be thoroughly instructed as to the nature and hazards of his job and the whys and wherefores and results expected—the history and policies of the company so far as they affect him—and be encouraged to regard his job and his company as a friend to him, and, by his labor, show himself to be a friend to his job.

The man is then turned over to his foreman and during the first few months of his employment should be given special attention not only to acquaint him, beyond the possibility of forgetting, with the hazards of his job and the necessity of safe practices (for a man is about four times as liable to injury during the first three months of his employment as in any like period thereafter) but also to enlarge his acquaintance among the rest of the organization to the end that he can build up a circle of friends and gain some first hand knowledge of all the strange activities going on about him and learn the connection between his own particular work and the final products of the plant.

Periodical Examinations

Let us assume the new employee is now started on his employment, imbued with the idea that he has selected a good company to work for and a safe place to work. The next step is to devise a program for the constant maintenance of safe practices among all employees new or old. Here again the medical end is very important for it is only by keeping employees healthy and fit that we can hope for concentration on their task. The medical department must be made convenient to the men and the men must be urged to make free use of it.

Periodic, at least yearly, physical examinations should be made of the entire organization, and the doubtful or weaker ones more frequently. This examination should cover ears, eyes, teeth, tonsils—in fact the whole body and include X-Ray of lungs, teeth and other parts, urine analysis and Wasserman where examination indicates necessity.

Frequent sanitary inspection should be made by the plant physician or an expert called in for the purpose. Inspection of home conditions and medical and hygienic advice can be made attractive too, and should be appreciated by the families. First aid treatment of all minor cuts and abrasions should be convenient and the men encouraged or if necessary forced to use them, for therein is the prevention of many cases of serious infection.

Good drinking water is an important factor and during hot months it must be cool but not too cold. The practice of thowing ice in a bucket and allowing the men to drink the melted water results in many heat prostrations and the cost of these so-called accidents will each pay for a number of drinking fountains. Dysentery and kindred sickness will also be materially reduced by this percaution. My company has checked this condition closely and practically eliminated sickness and accidents of this kind.

Cultivate Safe Thinking

The final and probably most important phase of accident prevention is the cultivation of safe practices and safe thinking in the daily routine of the employee. This program should first have the approval and active support of company executives. From them it can, by gravity, filter down and permeate the entire organization. It should be classed as one of the fixed policies of the company and take its rightful place on a parity with them.

Given proper backing from the management the safety engineer can be a power in the battle for safety and produce real and tangible results in accident prevention. He has a wealth of material at hand for the safety education and training of employees and is not bound by any fixed rules of procedure. In fact safety programs and organizations are as numerous as are safety engineers. Generally speaking the most common programs are a skeleton safety organization composed of a central advisory committee and numerous workmen's inspection committees. Periodic inspections are made and general meetings held to discuss unsafe conditions or practices. Talks on safety and health should be given at these meetings and a constant attempt made to revive and prolong safety enthusiasm. The meetings must be brief, snappy and interesting.

Thousands of picture bulletins are available from insurance companies, the National Safety Council and other sources, and can play a definite part in the program, but better than these are home-made bulletins and slogans bearing on actual conditions or events within the organization.

Moving pictures contrasting safe and unsafe practices have been and are being made by the Bureau of Mines, the petroleum safety section of the Mid-Continent Oil & Gas Association and others and are available for showing free of any cost. I have observed the crowds and listened to their comments at a number of such shows and I am convinced that they are of material aid in fixing the safety idea in the minds of the workmen. A further benefit is derived from the fact that the employee's family can be thus initiated and interested in the safety program and many times a husband or father will be given a helpful caution as he leaves for work in the morning to "Be careful and don't get hurt."

I believe the real power and efficacy of the program, though, rests with the foreman and gang pushers. It is to them that the laborer looks for orders, advice and example. If the foreman is a driver, willing to sacrifice safety for production, no amount of preaching by others will eliminate the accidents in his gang.

But if he can realize that only safe methods keep production continuous, and maintain a close supervision over his men, make them believe that he will never ask them to do a job that he himself will not do, or will never expect them to do work endangering their life or limb; if he will drop a precautionary hint here and there and pitch in and show a man how to do a job in an easier or safer manner, the safety idea will take firm root in the minds of his men and with encouragement from outside sources his gang can be entirely free from accidents.

Accidents don't "Just Happen," they are not unavoidable, they are caused, and when the true cause is found then the means of prevention can be ascertained.

The cause of an accident is usually in close proximity to the accident for it is usually a failure of the man rather than the machine. But where the immediate cause is the failure of a machine we can still trace the true cause to man failure in designing or fabricating the machine or abuse of the machine in its past operation.

That brings us to the question of co-operation between employer in the safety movement. The two most important phases of co-operation are universal safety training, and exchange of experiences.

At the present time comparatively few organizations are spending time or money on an intensive study and propagation of safety, and as a result these companies in hiring new men have to start them in the ABC's of safety. Of course on the other hand those companies without a safety department, in hiring men may pick up a few with considerable training in this line but it is more logical to suppose that the cast-offs and accident "repeaters" far outnumber the trained men.

The interchange of company accident experience is valuable in that it allows us to see over our own little horizon of accident hazards. By analyzing the accidents occurring to some 200,000 men we can diagnose very accurately the accident probabilities. When the study is based on a few thousand men the picture is so small that many hazards are overlooked until a serious loss brings them to our attention. The petroleum safety council of the Mid-Continent Oil & Gas Association has outlined an ambitious program for the study and prevention of accidents in all branches of the industry and have appealed to all operators for assistance. I strongly urge you to give that appeal careful consideration because the organization can be of real help to you in your own program of accident prevention.

"Had We Listened to Predictions in Past We Would be Without Oil Now"

—J. Edgar Pew

LOS ANGELES, March 7

THE thought that future generations will probably look back and laugh at the worries of the present over its oil resources, because of the ease with which they meet the future power problems as they arise, was advanced by J. Edgar Pew, president of the American Petroleum Institute, a principal speaker at the annual banquet of the Chamber of Mines and Oils here, March 5th.

"I am a great believer in the inventive genius of our people," Mr. Pew said in his address. "If oil had not been supplied in the quantities needed, when needed, and at a price at which it could be used, I believe that somewhere, someone would have made some other discovery that would have permitted our present progress and advancement. But the fact is they did not, because necessity did not require it. This is the 'oil age' and oil is entitled to the credit for much of our present accomplishments. I believe it will continue to perform its necessary function, until other and probably better power will be had. It has ever been thus. The precedent we have set is a good one.

"I rather suspect that some future generation, when oil is gone, our shales exhausted, our coal all mined and consumed, will be laughing at us because of our trials and labors, and our fears for their welfare, because of the then obvious ease with which they are doing things we are too blind to discover."

At another point in his address, Mr. Pew stated that, if the industry had listened to the "calamity" predictions of the past with regard to oil supplies, there would have been but little oil for this generation. No one would have had the nerve to spend money in the search that has produced the oil and our present industrial development resulting from this great supply of oil would have been impossible. Mr. Pew quoted a few of these predictions as follows:

"In its official bulletin, entitled 'Mineral Resources of the United States,' of 1889-90, on page 287, issued by the U. S. Geological Survey, and again in its bulletin of 1901, pages 404 and 405, we find the principal oil producing regions given as western Pennsylvania; New York; the Turkey Foot and other districts of West Virginia; the Macksburg and Lima fields of Ohio; the Florence field of Colorado, and southern California. These articles say: 'Not only are the localities above the chief petroleum producing districts in the United States, but indications are that, with the exception of Wyoming, they will continue so to be.'

"Also again quoting: 'The Illinois field is an exceedingly small one, but with little promise for the future, while the Kansas and Texas fields will at the best produce only a few thousand barrels each year.'

"No mention at all was made of Oklahoma, or the Indian territory as it was then.

"Since these predictions were made, Illinois has produced 357,000,000 barrels of oil; Kansas, 345,000,000 barrels; California, 2,056,000,000 barrels; Texas, which together with Illinois, was only a negligible quantity, has produced 992,000,000 barrels, and Oklahoma, not then heard of, or at least not suspected, has produced 1,540,000,000 barrels.

Recognizes Texas

"In 1909, the Survey said that Texas, also Louisiana, were to be factors. Texas had by that time produced about 110,000,000 barrels, since the previous estimate. The government estimate for 1909 gives Texas and Louisiana a total of 200,000,000 barrels as the limit to this combined production, actual and potential. But since 1909, Texas has produced 882,000,000 barrels, and this last year (1924), it produced over 133,000,000 barrels. Since 1909, Louisiana has produced 310,000,000 barrels.

"These predictions could be quoted at much greater length, and invariably with the same results."

Mr. Pew went on to say that he gave these figures and predictions for only one purpose; that of reminding the industry that, against the weight of evidence of the governmental agency employed to advise the country of its resources, the oil industry has gone out and found oil, and it is now producing oil each year, in greater quantities than the entire quantity of oil that was in existence in the whole country, according to the reports of such agency.

With regard to the outlook for this year, Mr. Pew stated that in an industry which is producing 2,000,000 barrels of oil per day, with a present day consumption of approximately the same amount, the question naturally is, "what is over-production?"

"It is a peculiar industry," Mr. Pew added, "depending upon its crude product from an unseen supply, whose reserves are difficult to estimate.

"It is a supply that comes both from a large number of wells and developed fields of known, settled capacity, as well as from usually more recent discoveries in flush areas, that are being almost continually developed.

"Every new field leaves behind it a large number of wells, that add to the known production.

"At the present time we have about 285,000 wells producing above five barrels each per day; the balance of the 710,000,000 barrels of annual production comes from about 15,000 wells.

"The first class of production mentioned (production from known fields and settled capacity) gives us about 70 per cent, and the latter 30 per cent of the entire production of this country.

"If it should so happen that we did not find any new fields during the present year, with the present production plus the additional drilling in the developed areas, the production would decline some; but it would not cause any very great hardship to the industry or to the country. It would permit the industry to market the oil from its large number of small wells at a price that would permit their operation with a profit to the owner, which he has not been able to do much of the time during the past two years. It would also permit the marketing of some of the large stocks of storage oil which has been collected and carried at a cost considerably greater than the average market over the past two years.

"It would also result in the cutting out of some of the uses of oil and its products, that are necessary under the conditions existing during periods of over production, but the continuance of which is not necessary, as this demand can be supplied by coal at a slightly greater cost to the consumer. The result would be that the needed oil would be easily supplied."

Suggests Memorial

A suggestion for a California memorial to its oil pioneers to compare with the Annual Drake Day in the East, was made during the meeting by W. W. Orcutt, vice president of the Union Oil Co. of California. Steps have already been taken by the Los Angeles Chamber of Mines and Oils to secure land with historical associations for this purpose, and committees representing the principal oil companies of the coast are at work devising ways and means to bring about this enterprise.

In this connection, Mr. Orcutt stated that, in surveying the benefits conferred upon the people of the present day by the development of petroleum, it was imperative that the united oil men of California should search the records of the early days of the industry in the state and preserve for posterity the names and deeds of those petroleum pioneers who braved the hardships of the West and by their fortitude, vision and self-sacrifice during the days when money was scarce and markets few, laid the foundation upon which the gigantic oil industry of today is built. He draws a comparison between the oil men who were the trail blazers of the industry and some of the great heroes of the past to whom monuments and memorials have been erected to perpetuate their name.

Working out Questionnaires as Social Feature is Introduced

By A. F. Hinton
N. P. N. STAFF WRITER

TULSA, March 9

OIL MEN of late have been subjected to a barrage of questionnaires, in which they are asked to answer questions covering the entire field of petroleum engineering. The knowledge sought runs the entire gamut from the best practise in well-spacing on down the line to the effects of edge and bottom water.

Not only are they requested to answer questions propounded, but are likewise directed to give good and substantial reasons for their opinion as given. These questionnaires have emanated from the Federal Oil Conservation Board, from the American Petroleum Institute and from various sub-committees of sub-committees.

Attempts to answer these questions, coupled with attempts to codify such answers so as to arrive at a common conclusion of the industry's best minds, bring out two things more forcibly than anything else.

These are that conditions in various oil fields are so peculiar, each field to itself, that it is impossible to give a definite answer to a general question which was meant to apply to all fields. The other is that many of the best minds find themselves diametrically opposed in opinion to other minds of the same standing and caliber. All of which goes to show that each field, and in fact, almost every individual well, is a problem unto itself, and not susceptible to rigid formulae laid down to cover similar cases elsewhere.

These things were brought out strikingly at a recent meeting of the Mid-Continent Section of the American Institute of Mining and Metallurgical Engineers in Tulsa. The idea behind the meeting was to form a forum of opinions, and to reach some sort of conclusion as to the best set of answers to a selected series of questions contained in one of the questionnaires.

Under leadership of John M. Lovejoy, of the Amerada Petroleum Corp., and chairman of the Mid-Continent section, the questions were taken up one by one, a previously selected engineer or geologist leading off with his idea as to the answer, followed by general discussion. This method brought out some interesting statements and opinions. In some of the questions, those present were able to agree upon a more or less definite conclusion, while in others, no such unanimity of opinion was developed.

In addition to that class of questions the answers to which are rendered difficult because conditions differ so radically in various fields, it was brought out forcibly at the meeting that the answers to other questions hinged so largely on price factors, costs, and other economic features that again it was difficult to give an answer in general terms. In other words, a question might be answered one way to apply in times when crude oil prices were high, but which would have a much different aspect when considered from the standpoint of low crude prices.

QUESTION NO. 1

What is your opinion as to the number of wells necessary to be drilled to each ten acres in order to leave remaining the least amount of oil in the sand? That is, would there be more oil left in the sand by drilling one well to ten acres than by drilling ten wells to ten acres?

An example of such question was the first one considered.

This question is not entirely clear as it is worded, for it is certain that more oil may be produced by drilling wells close together than far apart. The problem is to drill the right number of wells to get the most recovery, with due reference to cost of drilling and price of crude.

W. B. Wilson, chief geologist of the Gypsy Oil Co., led off with his interpretation as to how this question ought to be answered, and introduced some interesting data, quoting a formula laid down by W. W. Cutler, Jr., in Bureau of Mines bulletin 228, and illustrating its use. This formula submits that the ultimate production per well is directly proportional to the space between the wells and is proportional to the square root of the acreage allocated to each well. In other words, doubling the distance between wells doubles the ultimate recovery per well, and halves the ultimate recovery per acre.

Mr. Wilson was of the opinion that in discussing well spacing, it was first necessary to differentiate production into two classes: one in which water pressure is primarily responsible for the flow of oil, and the other in which gas is the principal expulsive agent. He cited the case of Mexico, where one well, if it were located on the pinnacle of the structure, probably would be sufficient to drain the entire reservoir. This condition is approached in some of our fields, but in most Oklahoma pools gas pressure is the principal factor.

In the early days of Mid-Continent development, when wells were drilled only to shallow depths, the natural tendency was to locate them close together, but with deeper drilling, the tendency has been toward wider spacing, culminating, especially since the development of the Burbank field, in one well to each 10 acres. Cromwell was developed on a 10-acre basis, as was the deep sand area at Tonkawa and other recent fields.

Given the ability accurately to predict ultimate recovery in a field, the geologist or engineer would be able to advise the executive department as to the best drilling campaign to follow. Two chief factors in this, however, are market price of crude and drilling costs, which determine the exact number of wells that can be drilled to give the maximum profit for a particular field.

Mr. Lovejoy stated his belief that the well to 10 acres idea had been adopted practically as standard practise during the past three years of hard times and low crude prices, but intimated that more wells could be drilled profitably under higher crude prices, in fields where recovery is good. He believes that more study should be given to proper well-spacing in developing a field, taking into consideration all factors entering into it.

Cutler's Formula Applied

James O. Lewis, petroleum engineer, and member of the firm of Smith, Dunn & Lewis, related recent experiences he had had in examining certain properties in Archer county, Texas, where, he said, the common spacing is two and one-half or three acres to the well, and sand conditions are quite uniform. "The particular property I was examining," he continued, "indicated a recovery of about 5000 barrels to the acre with a spacing of a little over six acres to the well, whereas the recovery from other properties in the district was 7000 to 10,000 barrels to the acre with spacing of two and one-half acres to the well.

"In checking up, I found that the proportion of recovery on the two spacings was in exactly the same proportion as would be obtained from Cutler's formula. As the recovery per acre was high, the oil of good quality and of high price, and the wells of moderate cost, the spacing of six acres to the well is too much, for by drilling twice as many wells, two or three thousand barrels per acre more could be obtained.

"On another property where the wells were 3000 feet deep, there was enough information to indicate what the yield per acre would be at spacing adopted of 10 acres per well. It was possible to compute by Cutler's formula that it would be profitable to drill the holes

somewhat closer than one to 10 acres if the price of oil remains the same or better. That is, the 'five-spot' location could be drilled in the more prolific portions of the pool, though probably it would not pay to drill closer than 10 acres to the well in other portions."

After hearing this and other discussion, Mr. Lovejoy said that the concensus of the meeting appeared to be that the price factor and the cost of drilling probably determines how many wells should be drilled. With deep wells and low prices, a well to each 10 acres is probably all right, but with better crude prices, more wells could economically be drilled.

QUESTION NO. 2

Do you think the percentage of oil left in the sand where a field is drilled rapidly with a great number of wells completed at approximately the same time is greater than where a field is developed slowly by completing only a few wells at a time?

H. B. Goodrich, consulting geologist, was asked to respond to this question. He said this question, like others in the questionnaire, requires the co-operation of all engineers to solve. Engineers, he said, should not generalize too much, but should recognize that each district has its own peculiarities, such as porosity and thickness of sand, pressure, and other factors which have important bearing on the best way to develop the field. He answered the question by stating that his belief was that rapid development resulted in greater recovery and therefore less oil left in the sand.

James O. Lewis brought out the point that the question involved almost the same problem as that of spacing, that is, a slow drilling campaign is much the same as wide spacing of wells, for the first group of wells drilled tend to drain the property, so that less oil is recovered by subsequent groups. When exterior wells have been drilled on a lease, he pointed out, and allowed to produce for a while before the interior locations are drilled, it is usually found that the latter may have good flush production for a short time but quickly slump off to a production level the same as that of the older wells.

Contrasting developments such as those at Burbank and Wortham were cited as different methods of drilling up a field, and it was the general opinion, apparently, that Burbank would have produced more oil ultimately if it had been drilled up as a commercial, instead of a departmental field. In that field, leases were thoroughly drilled up and on production for some time before adjoining acreage was offered for sale, so that the field spread out slowly, although each lease was exploited through rapid and simultaneous drilling of 16 wells to the 160 acres. At Wortham wells were started at practically the same time all over the field with the result that in less than 60 days the entire pool had been drilled up and defined and its oil taken out almost overnight.

It was pointed out that after the Burbank shutdown agreement had been abrogated, it was found that the field's rock pressure had gone off considerably during the life of the agreement and the wells drilled in were not nearly so large as had been expected. This was given as an illustration of the effects of slow drilling.

Frank A. Herald, consulting geologist, spoke of his experiences in Mexico, and said that the opinion there was that slow development recovered more oil than rapid development, due to the fact that water was the principal expulsive agent, and the wells produced more if the water was allowed to move up slope on the structure slowly. If the water moved up rapidly, he said, as when many wells are drilled at one time, it tended to trap oil behind it, and this oil would not be recovered. He mentioned one well in Mexico which was resuscitated after having gone to salt water, and produced more than 5,500,000 barrels of oil after having once been abandoned. This well, he said, was in an area that had been developed slowly.

"There are other wells which have produced enormous quantities of oil after they first went to salt water where extraction was rapid," said Mr. Herald, "but it is unfair to compare one with the other and make a generalization, because we don't know whether the conditions in the containing body are the same, but from the theoretical standpoint, it seems to me that in any area where the oil body is followed up by water, we will get ultimately less oil by rapid development than we would by slow development—and particularly so where that oil is in a sand."

The Salt Creek field was mentioned as an example of slow development. That field, it was said, was drilled at the rate of one well to about 20 acres, with the intention of later drilling up the remaining locations down to about eight acres per well, but that the few inside wells drilled recently have been so small as to render it unlikely that the final program will ever be carried out.

Economic Factors

M. G. Gulley, economic geologist for the Marland companies, was present at the meeting, and took part in some of the discussion. He has been engaged for some time in discussing these questions with various geologists, engineers and producers in the Mid-Continent field, in an effort to develop, if possible, what the industry's opinions are as to the way the questions ought to be answered. In connection with the discussion on rapid or slow development, he stressed the factor of competitive drilling as one of the most serious considerations involved, stating that no matter which was the right way or the wrong way for a field to be devoleped, it was competitive drilling usually that forced the issue.

It was pointed out, however, that this particular question asked only which method yielded the greatest amount of oil, and no reference was made to the economics involved, although it was admited that competitive drilling in the last analysis forced the pace at which any field was developed.

At the request of Sidney Powers, Amerado Petroleum Corp., the chairman called on George C. Matson, consulting geologist, to tell of the developments in the Luling field, Texas. Mr. Matson stated that general development at Luling proceeded very slowly because the United North & South Oil Co. had 25,000 acres under lease to develop. Here and there, he said, they failed to get a lease covering a small farm, or had sold leases on 10 or 20 acres, scattered throughout the field.

Some of these small leases were drilled very rapidly and with large numbers of wells, in some cases as close as one well to two and one half acres. These leases, he said, got a much larger recovery per acre and their ultimate recovery is going to be larger than on the United North & South properties. He concluded by saying that no general conclusion can be drawn as to the best manner of drilling up a water-pressure field.

Mr. Lewis told of a case in the Powell field, where an operator refused to join in the rush of drilling, started his wells late and took his time about devoleping. He got only small wells as far as initial production was concerned, but today has 3,000 barrels of production, and apparently will have it for a long time. It seems likely, said Mr. Lewis, that this operator will get the highest recovery per acre in the entire field.

Finally, after more discussion along similar lines, in which other fields were

The Newest Rage

FOR an oil man, working out a questionnaire may come to take the place of Cross Word puzzles. We have had them from the Revenue Department, various government and state bureaus and associations and lately the Federal Conservation Board has been most generous in parceling out the extra work.

But, unlike Cross Word puzzles, the more you study and work on some of these questionnaires the further you get from anything like a definite answer. And again, unlike a Cross Word puzzle, the more people you invite in to work on a questionnaire, the more you become at sea.

The accompanying article shows how difficult it was for engineers to develop conclusive answers to six answers having to do with field production as picked from recent questionnaires. All this discussion developed at a meeting of the Mid-Continent Section of the A. I. M. M. E.—Editor.

cited as examples, Mr. Lovejoy interpreted the opinion of the meeting as being that in fields known as gas fields, differentiating from water fields, rapid development yields the greater amount of production.

QUESTION NO. 3

Do you consider the encroachment of edge water detrimental to the recovery of oil from the entire field, or is it beneficial?

This question is one decidedly difficult to answer, and discussion of it brought forth a great variety of opinions In answering it developed careful discrimination should be made between damage or benefits to edge properties and damages or benefits to the entire field.

The question of edge water is such a large one, and there is so much confusion between edge water and bottom water, that it is almost impossible to answer a question couched in terms so general. So much depends on the type of field, the character of the container, the pressure of the water, the slope of the structure and other factors, than an answer for one field would be all wrong when applied to another

W. R. Hamilton, geologist and oil producer, was asked to start the ball rolling by giving an answer, and replied by stating that it was too broad a question to be answered with a great deal of generalization. "The edge water is sometimes under tremendous hydrostatic head," he said "while in some fields we know there is edge water and yet it does not make itself evident by any great pressure as the field is depleted. In cases where water is the propelling medium, I think the generalization is that edge water is a benefit rather than a dertriment." After considerable discussion, this question was finally passed without any definite conclusion having been reached.

QUESTION NO. 4

Do you consider that, under the present system of operation, drilling into bottom water has increased the amount of oil left in the sand? If so, is the amount appreciable when compared with the total ultimate production from all fields in which such bottom water is found; all fields in the United States?

Mr. Herald, when called upon to give an answer to this question, stated that the answer, like the answers to preceding questions, was different for different areas. In certain areas, he said, drilling into bottom water decreases the ultimate production, while in others it increases it. Mr. Gulley stated that this question had called forth a great deal of discussion wherever he had mentioned it, and that he was invariably asked to define edge water as against bottom water.

He defined bottom water as water that was present in the field before it was drilled, usually below the oil, sometimes with the oil, while edge water was water surrounding the field and taking the place of oil in the sand as the former is extracted. He stated that in general operators and geologists had taken the position that in almost every field a particular set of conditions govern the effect of bottom or edge water.

The discussion at the meeting also developed a difference of opinion as to definitions of bottom and edge water and many interesting examples of the effects of water on production were given. The chairman finally decided that the answer to the question depended a great deal on the definition of the two kinds of water, and that the meeting had developed no definite conclusion.

QUESTION NO. 5

Do you believe it necessary to produce gas with the oil in order to best recover the oil? (a) Is such gas now being produced in excessive amount? (b) Do you think the percentage of oil left in the sand could be reduced by maintaining a back pressure on all producing wells in a field?

There was no argument but that much more gas than necessary to lift oil was being produced, especially in fields such as Cromwell, where large quantities of gas were blown off into the air during the time the field was being devoleped.

As for the part of the question referring to back-pressure, Mr. Lovejoy told of experiments made with back pressure by his company, and said that they had found that application of back pressure increased the ratio of gas to oil rather than decreasing it, and therefore was not a conservation measure from the standpoint of gas consumption.

E. O. Bennett, assistant engineer, U. S. Bureau of Mines, of Bartlesville, told of experiments made to determine the amount of gas necessary to flow a well, and of methods used to obtain the maximum amount of energy from the minimum amount of gas. In these experiments, the "bean" was placed at the bottom of the hole and gas was metered in definite amounts through the tubing with different sized openings. He stated that the work is in an experimental stage, and that they had been able to arrive at no definite conclusions as yet.

QUESTION NO. 6

Do you accept the generally accepted belief that approximately 75 per cent of the original amount of oil in the sand is left remaining after all wells are exhausted by our present flowing and pumping methods?

A. F. Melcher, now of the Marland companies, and an authority on texture, porosity, etc., of oil sands, spoke interestingly on this subject.

In the discussion on this subject, Dr. Ed. Bloesch, consulting geologist, gave some interesting figures as to recovery from the oil sands of Pecehelbronn, where oil sands are being mined after having been "drained" by ordinary production methods. In that field, said Dr. Bloesch, 17 per cent of the oil originally contained in the sand was produced by flowing and pumping wells; 43 per cent more has been or can be produced by the mining methods in use; 32 per cent more is recoverable by mining the sands and washing the oil out; a loss of eight per cent is figured.

Another Party Goes To Seek Oil in North

WASHINGTON, March 9.—The exploration of Naval Petroleum Reserve No. 4 in northern Alaska on behalf of the navy department will be continued by the Department of the Interior through a party from the Geological Survey.

This party in charge of Gerald Fitz-Gerald, topographer, with Walter R. Smith, geologist, sailed from Seattle Feb. 28 for Seward, and from Seward they will go by way of The Alaska Railroad to Nenana, on Tanana River. At Nenana they will get dog teams and follow the mail trail down Tanana and Yukon rivers as far as Kaltag and thence across the country to Unalaklett, on Norton Sound.

From Unalakleet they will follow the trail northward to Candle and Kotzebue. At Kotzebue they will purchase enough supplies and equipment to make the party entirely self-supporting for the next four or five months. From Kotzebue they will go northward by dog team up Noatak River and attempt to find a pass across the Brooks Range, which forms the watershed between this stream and the rivers flowing northward into the Arctic Ocean.

It is estimated that if the weather is favorable and the trail is in good condition the party should be across the mountains, on their northern slopes, early in May. Probably by that time travel by dog team will be difficult for the snow will have melted and the ice in the streams will be breaking up, so that the party will probably establish temporary headquarters from which to conduct surveys of the adjacent region. As soon as the rivers have become sufficiently free of ice to permit the use of canoes, which will be taken along, the party will abandon the sleds and begin the summer's exploration by boat.

The party expects to explore the unknown region between the head of Pitmegea and Utukok rivers during the summer, perhaps descending the Utukok until they have connected their surveys with those made in 1924 by W. T. Foran, geologist, and O. Lee Wix, topographer. If time permits they will then work eastward and, if possible, find a pass into the upper part of Meade River basin and connect with the surveys made last year by Philip S. Smith and R. K. Lynt, at the head of the Ikpikpuk and the western fork of the Colville.

This work will probably last all summer and may run into the fall. It is impossible to decide how the party will get out of the region until the members have acquainted themselves with the local conditions. Possibly the party may continue northward, follow down some of the large streams of the region to the Arctic Coast, and come out at the settlements of Wainwright or Barrow. On the other hand, they may find it advantageous to turn southward and attempt to discover a portage into some stream tributary to the Noatak and then follow that river down to the coast.

Salt Water Disposal Solved in Texas Fields by Co-Operative Work

By Paul Wagner
N. P. N. STAFF WRITER

HOUSTON, March 6.

THE problem of salt water disposal in fields where oil and brine come out of the well together is being successfully solved by co-operative efforts in two types of Texas fields.

These types of fields include those of the Woodbine fault zone, in Central East Texas, and those of the Gulf Coastal saline dome region. In both types of fields, large quantities of water are produced with the oil after the flowing well stage of production has been passed.

Although first applied in the Gulf Coastal region as early as 1917, the co-operative plan of salt water disposal was not utilized in the Woodbine fault zone fields until the passing of the Powell pool to a pumping stage.

At Powell, as elsewhere, the operating companies banded together for the purpose of building a system of canals that would extend throughout the field and would connect with main ditches for the purpose of carrying waste down to the nearby creeks.

The only difference at Powell, as compared with the fields of the Gulf Coastal territory, was that these ditches connect with three creeks feeding the Trinity river and it is not necessary in this region to build earthen storage for salt water after the fashion of Gulf Coastal practice.

The three streams fed by the Powell canal system are Chambers Creek, Crab Creek and Richland Creek, all tributaries of the Trinity river. By the time the brine has traveled down to the Trinity, however, it has lost its salinity through contact with other waters.

In the Gulf Coastal region, the building of earthen storage pits is made necessary to protect fresh water canal systems of rice farmers and others who utilize waters that must not be contaminated. No such protective measures are necessary in the general area where the fault zone fields have been found and developed.

Wortham System Under Way

Right-of-way has been purchased and preliminary steps have been taken for the formation of a salt water disposal company at Wortham, which is the latest of the fault zone fields to pass from the flowing stage of wells to a pumping proposition.

The Wortham system will approximate except in size, all essential details of that which was worked out previously at Powell. For that reason, and because the Powell system provides detailed data with regard to salt water disposal, the workings of this company are herein discussed.

A field supervisor is employed by the Powell Salt Water Co., a regularly chartered corporation with capital stock of $50,000, to have charge of the work. This supervisor is George Martin, who makes his headquarters at Corsicana and whose duty it is to report to any of the companies in case he finds any of the men allowing waste oil to escape with the salt water; to build pick-up pits to catch any waste oil that may be escaping; and to keep the different creeks clear of drift piles, besides burn any non-recoverable oil that might happen to get away from the pick-up pits.

Handling of Water at Well

The handling of water and oil on the producing lease is invariably the work of the men employed by the individual companies. On leases where dehydrating methods are employed, the water drawn off into the canals goes down them to the main ditches and thence into the creeks tributary to the Trinity river.

In any event, the water and oil coming from a well goes through a wash tank where the fluid is heated to separate the petroleum content from the brine, before the oil reaches the stock tank.

Fig. 1.—Salt water trough alongside battery of tanks on Humble Oil & Refining Co.'s Davis property at Powell, showing how tanks are bled into pick-up pits.

Any water that might find its way into the stock tanks is drawn off into a small pit at one end of the surrounding fire wall. In the case of any oil accumulating in this water pit, it is picked up and pumped back into the stock tank before the brine is turned into the canal system. The larger quantity of water separated from the oil at the flow tank is run into the canals regularly.

Properties Kept Clean

Besides providing a disposal system for the salt water, the co-operative procedure of the companies makes it possible to cut down both fire and accident hazards, by keeping the field properties cleaned up. That is one of the practical values of the system.

In an accompanying figure a battery of tanks on the Humble Oil & Refining Co's. Davis lease, at Powell, is shown. The installations, which are self-explanatory, show how the tanks are bled into a trough to dispose of b.s. and water, which had stood up to the pipe line connections prior to the time the work of cleaning up the field was begun.

Another figure shows pick-up pit in the foreground, connected with a pump on the first fire wall of the tank battery, recovering the relatively small quantity of crude that had got away with the salt water in the bleeding process.

The comprehensive system in use at Powell does away with a certain type of "producer." This is the individual who operated his own pit to catch the oil which got away from the owners. The oil having passed off the property where it was produced, the operator of the leasehold had no further claim to it and the "skimmer," getting permit from a landowner to put in a pick-up pit, gathered the waste oil and sold it. As high as 2000 barrels daily have been recovered by such operators in fields of the Powell type.

Cost of Powell System

A total of $207,495 had been expended by the Powell Salt Water Company from May 1924 to the end of the year. All but approximately $35,000 of this amount had been paid to landowners in the field for rights-of-way for the canal system to Chambers Creek, Crab Creek and Richland Creek. The rest of the expenditure had been almost entirely for maintenance, which hereafter will constitute the greatest cost to be entailed.

Virtually all of the roundly 700 producing wells in the Powell field are connected with the salt water disposal system. Against these wells have been

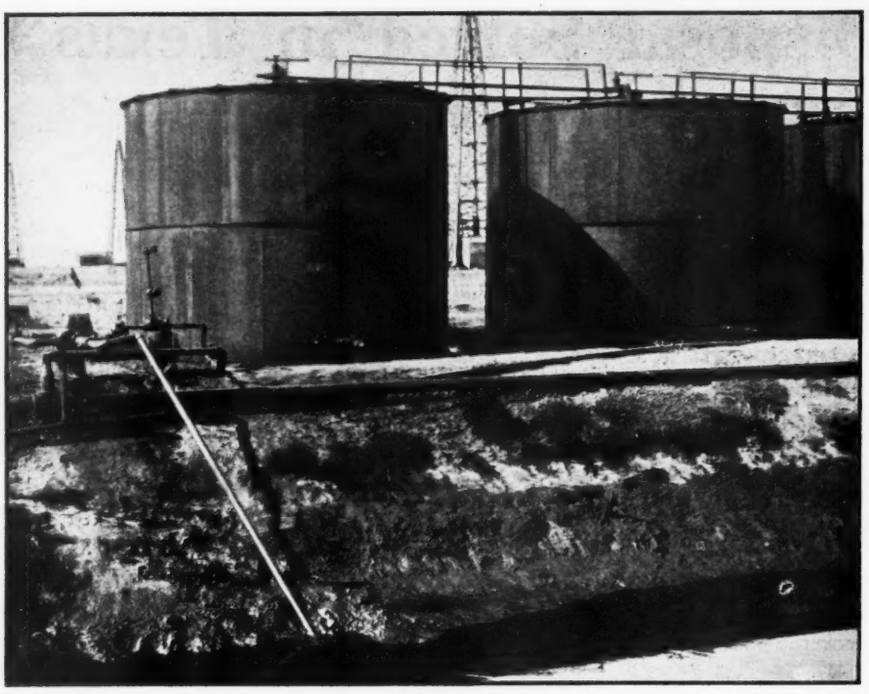


Fig. 2—Pick-up pit and pump working on first fire wall.

levied assessments to raise the necessary money for plant expenditures, rights-of-way and maintenance. Three of these assessments have been made, one of $200 per well and two of $100 per well.

Except as regards the varying expenses involved in the different types of fields the plan works out similarly at Powell to the way it did in the Gulf Coastal districts. In the latterly mentioned territory, systems were first operated in the Sour Lake, Saratoga and Batson fields of Hardin county, and more recently at Hull and Orange.

Officers of the Powell Salt Water Co. are Harry L. Edwards, Humble Oil & Refining Co., Houston, president; W. V. Bowles, The Texas Co., Houston, vice president; M. E. Brock, Gulf Production Co., Houston, secretary-treasurer; who, with the following constitute the directorate: Joe Kilchenstein, Magnolia Petroleum Co., Dallas; J. A. Rush, Simms Oil Co., Dallas; B. S. SoRelle, Pure Oil Co., Dallas; M. B. Sweeney, Sun Oil Co., Dallas; H. M. Stalcup, Skelly Oil Co., Tulsa; and James R. Gahn, Tidal Oil Co., Fort Worth.

Readers' Notice

Readers of National Petroleum News are advised to be on the lookout for a circulation agent by the name of H. H. Jenkins who is fraudulently taking subscriptions and renewals to this publication. He has been working recently in Oklahoma. He has in his possession Receipt Book 1500 to 1599, being authorized a year ago to act as an accredited circulation agent. He disappeared, however, and has been keeping what money he collects.

It will be a favor if you will advise the Cleveland office promptly by wire if he is at work in your district, or our nearest branch.

St. Louis Oil Club Banquets and Elects Officers

ST. LOUIS, MO., March 9.—An inaugural banquet, ball and card party was held by the St. Louis Petroleum Club, Feb. 21, at the Missouri Athletic Assn., the following officers being elected for the current year:

Paul Browne, Independent Oil Co., president; Charles Osthoff, Jr., Liberty Bell Oil Co., vice president; R. F. Leinberger, Blackmer Rotary Pump Co., secretary; W. Kleissle, J. D. Streett & Co., treasurer; H. Billings, St. Louis Tin & Sheet Metal Works, sergeant-at-arms.

New members on the governing board include A. R. Chappell, of the R. J. Brown Petroleum Co.; Art Burns, Roxana Petroleum Corp.; Ed Adams, George P. Jones Oil Co.; C. A. Beach, Empire Refineries, Inc.; H. W. Strecker, Modern Oil & Supply Co., and A. F. Cunningham, National Enameling & Stamping Co.

From past activities and accomplishments, the club members believe that St. Louis has one of the strongest local oil clubs in the country, according to Mr. Leinberger. It was incorporated in 1924 to meet local problems of the oil industry and allied trades.

Extends Dayton Dome 500 Feet East

HOUSTON, TEX., March 10.—Mills Bennett has completed No. 3 Pickett at the 3500-foot level on South Dayton salt dome, near Liberty, for 3000 barrels initial production. The field is extended 500 feet east of earlier production by this well. Bennett's two earlier Pickett wells are now making 865 barrels together. Vacuum Oil Co.'s No. 1 Barrett is good for 2560 barrels at one week old. Oxford Oil Co.'s No. 1 Harrison is making 450 barrels. Total production for the six wells amounts to nearly 7000 barrels daily, with prospects of the field's average being at least doubled in the next few weeks. Crude from this field tests 22.8 gravity and is high grade lubricant material.

Prairie Shipments Up in February

Staff Special

TULSA, March 6.—February being a short month, shipments of the Prairie Pipe Line Co. were slightly less than during January, but showed a large increase in daily average, indicating a continuation of the upward trend that has been in evidence for the past six months. February shipments totaled 4,322,556 barrels, as compared with 4,441,290 barrels in January; but daily averages jumped from 143.268 barrels in January to 154,377 barrels in February. At this rate of increase, and giving February 31 days, shipments would have increased more than 344,000 barrels for the month.

Shipments for the past six months have been as follows:

Month	Shipments	Daily Average
September, 1924 ..	3,024,324	100,811
October, 1924	3,329,588	104,503
November, 1924	3.502,938	116,765
December, 1924	3,857,754	124,444
January, 1925	4,441 290	143.268
February, 1925	4,322,556	154,377

Second Wellington Dome Producer

DENVER, March 9.—Union Oil Co. of Cal. is drilling in its No. one Destraten, in center s.w. 19-8-M-68W Larimer County, Colo., this location placing it about 1000 feet north of the discovery well on Wellington Dome. The new well is reported flowing 60 barrels an hour at two feet in sand topped at 4501 feet. The discovery well is said to be still making about 700 barrels.

GAINESVILLE, TEX.—The Big Indian Oil & Development Co., which drilled in a well 10 miles northeast of Gainesville, Cooke county, estimated at 30 barrels, has let contract for 112-foot derrick for No. 2 well. The oil in No. 1 was found at 3520 feet. Heavy rotary will be used in the second well.

Oklahoma Production Again Declines; Marland & Phillips Raise Crude

By A. F. Hinton
N. P. N. STAFF WRITER

TULSA, March 7

OKLAHOMA'S production again declined considerably the past week, dropping off practically 10,000 barrels, and making a total decrease the past two weeks of 18,000 barrels. The state's output is estimated to have averaged 465,615 barrels daily this week, as compared with 475,512 barrels the preceding week.

Again Tonkawa was the principal factor in the decline, as that field dropped 5552 barrels to 87,490 barrels daily, the first time it has been below 90,000 barrels daily since last September. Its actual output now is reported probably 3000 barrels below the figure given, which is a weekly average. It appears now that Tonkawa has finally started the long slide which has been long looked for and many times predicted.

The past week has been one of watchful waiting on the part of the industry, which seems imbued with the notion that the Prairie Oil & Gas Co. is on the verge of announcing another increase in the price of crude oil. The week wore on to its close, however, without any such thing coming to pass, although there were increases recorded by some other purchasers, whose action was looked upon as an indication that more general advances were sure to follow.

The Kay County Gas Co. (Marland) announced a new schedule of crude prices, effective Mar. 5, under which it raised prices from five to 15 cents a barrel, and put the highest grade up to $2.50. It is probable that keen competition for northern Oklahoma high gravity oil, especially in the Tonkawa and Watchorn fields, was responsible for Marland's action. Independent refiners in that area have been actively fighting for crude and have been paying substantial premiums for it. Marland's new prices are as follows:—

30-32.9	$1.70	increase 15 cents
33-35.9	1.90	increase 10 cents
36-38.9	2.10	increase 10 cents
39-41.5	2.30	increase 05 cents
41.6 and over	2.50	increase 15 cents

On the same day, the Waite Phillips Co., which is an actve buyer of crude to supply its Okmulgee refinery, also raised all its prices, making the top grade $2.50, but going even higher than Marland on the two grades below that. For 39 to 41.5 gravity, that company offers $2.40, while its price for 36 to 38.9 is $2.15.

If Oklahoma production continues the precipitate decline it has displayed recently—and there is evidence that it will do so for a while—and if developments at Bazette, Tex., finally remove that area from consideration as a source of an immediate new supply of crude, it appears that the next few weeks will see the crude market in a very bullish condition, and from present indications prices, when they start upward again, are likely to soar to heights not attained in the past three years. In other words, three-dollar oil may be "just around the corner."

The best information obtainable on the subject indicates that the Prairie is drawing upon stored oil at the rate of 30,000 to 35,000 barrels daily and it is natural to suppose that, in selling this oil, the company will get the highest possible price for it. Present prices, even with the increases of the past few weeks, probably are not high enough to bring much profit when the expense of storing oil is taken into consideration. The figure given as withdrawals from storage is based upon estimated runs of about 120,000 barrels daily and shipments of around 160,000 barrels, of which possibly 10,000 barrels represent tenders and not sales on the part of the company. Actual shipments during February averaged 154,000 barrels daily, and have been increasing for the past six months. The Standard Oil Co. of New Jersey is said to be buying something like 25,000 barrels of crude daily from the Prairie, and at Prairie prices plus the usual charges, according to reports. Thus, there is little doubt that the Prairie—as well as other companies holding large amounts of crude in storage—is hoping that conditions will make it possible to advance crude prices considerably beyond their present level.

Current Production

The past week saw a continuation of the general downward tendency of production in Oklahoma, with every active field in the state decreasing in output more or less. The state's production is now lower than it has been at any time since last July, when, for the week ending the 5th, it averaged 466,810 barrels, as compared with 465,615 barrels at present. That was before the deep sand at Tonkawa had hit its full stride, but Cromwell then was in the first bloom of youth and was jumping its production rapidly.

Tonkawa went off 5552 barrels the past week, averaging 87,490 barrels daily, from 750 wells. Three new completions were reported during the week, all of which were in the deep sand. The deep wells, now 87 in number, increased from 68,400 barrels to 69,200 barrels the first part of the week, but fell rapidly during the latter half, and were down to about 63,000 barrels yesterday.

The 87 deep wells had a daily average of 68,062 barrels during the week, as compared with 73,282 barrels the preceding week, a loss of 5220 barrels. The 663 remaining wells in the field fell off slightly, averaging 19,430 barrels daily, as against 19,760 barrels last week.

Burbank continued to decline, and at a rate more rapid than had been in evidence recently, as it decreased 1190 barrels to a daily average of 55,520 barrels. This production was obtained from 1671 wells, the same number as the preceding week. The Osage county side of the field produced 43,762 barrels from 1476 wells, while the Kay county extension accounted for 11,756 barrels, from 195 wells.

Cromwell reported one new well, bringing its total to 298 but fell off considerably in production, going off 1675 barrels to 36,970 barrels daily. Cromwell, however, is still maintaining a comfortable lead over Papoose, its nearest rival in that part of the state, as the latter declined 1355 barrels and averaged 32,725 barrels daily. Papoose now has 123 wells, a gain of six during the week. Some of the new wells were of large initial production, but they were unable to stem the decline. Wewoka reported 110 producing wells, a gain of two over the week before, but declined 790 barrels in production, averaging 10,710 barrels daily.

Kansas showed a substantial increase in production the past week, going up 2720 barrels to 87,250 barrels daily. The principal factor in the state's recent upward trend has been the prolific Rainbow Bend field in Cowley county, which now has 28 wells producing about 15,000 barrels daily.

Wells Completed

In Oklahoma, during the week just closed, 82 wells were completed, of which 50 were oil wells, 11 gas wells, and 21 dry holes. This is a small decrease from the preceding week, when there were 86 completions, divided 54 oil wells, seven gas wells, and 25 dry holes.

The 50 oil wells included in this week's report had a total initial production of 16,871 barrels, giving them an average production per well of 337.4 barrels. This also is a decrease as compared with the preceding week, when 54 wells brought in 22,125 barrels of new production with a per-well average of 409.7 barrels.

Completions reported from Kansas this week totaled only 14, of which four were oil wells, one was a gas well, and nine

were dry holes. Last week, there were 19 Kansas completions, divided 13 oil wells and six dry holes. The four oil wells in this week's report had a total initial production of 2215 barrels, giving them an average per well of 553.8 barrels. Most of this production came from one well in Rainbow Bend. Last week, 13 oil wells brought in 3650 barrels of new production, with a per-well average of 280.8 barrels.

Almost every district in Oklahoma shows an increase in drilling wells the past week, as revealed in the table of operations accompanying this article, the state as a whole having 50 more drilling wells now than it had a week ago. The only district to show less drilling wells than last week is southern Oklahoma, which has 113 drilling, as compared with 116 last week. Kansas also shows a big gain in locations, rigs and drilling wells, with total operations in the state jumping from 503 to 574. In north Texas, drilling wells increased from 371 to 400, in spite of a decline at Wortham, most of the increase having been in the Panhandle and Wichita Falls districts.

Since crude prices started advancing Jan. 22, Oklahoma drilling wells have increased from 690 to 856, while total operations have gone from 1275 to 1360 in the same period. In Kansas, there were 129 drilling wells just prior to the crude advance, as compared with 243 now. North Texas drilling wells, however, decreased during the period, dropping from 486 to 400, as the development of Wortham was in full swing at the earlier date.

One of the most interesting wells the past week was Dixie Oil Co. No. 1 Knight, which extended production about a quarter mile southwest in the Wewoka field, Seminole county which on account of showing unexpectedly high structurally, opens up considerable territory for development. This well which is located in the NE corner of NW NE of 6-7-8 is flowing about 800 barrels of 39 gravity oil daily from the Sykes sand at 3200 to 3205 feet. It had 18,000,000 feet of gas and a show of oil in the Smith sand at 3120 to 3175 feet.

W. R. Ramsey of Oklahoma City is building derrick for northeast offset to this well and has material on ground for a north offset. Considerable new work will undoubtedly ensue in the vicinity, and it is possible that Wewoka will be greatly enlarged, both in area and production, as a result of the find.

In the new Yeager district north of Holdenville, Hughes county, where the Dixie Oil Co. has opened a new pool, that company's No. 1 Irving, the discovery well, is making about 487 bar-

Completions in Oklahoma and Kansas Week Ended March 7

OKLAHOMA

Creek County

Company	Well No.	Description	Depth	Init. Prod.
Pure	3	SEc NE 30-14N-8E	622–630	5M
J. H. Wright	2	SEc NE SW 24-17N-10E	1805–1827	30
T. P. C. & O. Co.	1	NWc NE SE 6-16N 9E	2729–2745	80
Riverland	2	NEc SE SE 8-16N-12E OWD	2359–2370	525
Cumberland	2	NWc SE SW 22-15N-10E	2712–2767	125
Simmons-McKeben	1	NWc SE NE 33-15N-11E	T.D.3219	Dry

Garfield County

Company	Well No.	Description	Depth	Init. Prod.
Sinclair	23	C SE NE NE 24-22N-4W OWD	2235–2245	75
Sinclair	2	C SW SW NW 18-22N-3W OWD	2326–2337	200

Grady County

Company	Well No.	Description	Depth	Init. Prod.
Little Nick	1	NEc SE 27-5N-8W	1293–1437	2½M
Langston	1	NWc SW 19-6N-5W	T. D. 2509	Dry

Hughes County—Papoose

Company	Well No.	Description	Depth	Init. Prod.
Slick et al	3	C NW NE NW 2-9-9E	3337–3344	150
Slick et al	4	C SW NE NW 2-9-9	3325–3341	300
Slick et al	4	C NE SE NW 2-9-9	3336–3353	250 & 30M
Indep	5	C NW SW NE 2-9-9	3335–3350	360
Indep	3	C SE NE NE 2-9-9	3341–3383	600 & 20M
Transcontinental	8	C NE NE NE 4-9-9	3292–3310	700

Hughes County

Company	Well No.	Description	Depth	Init. Prod.
Tidal Osage	2	C SE NW SW 4-9-11	2992–3034	60
Dixie	1	SWc NW SE SE 18-8N-10E	3340–3353	517

Jefferson County

Company	Well No.	Description	Depth	Init. Prod.
Landis et al	1	SEc 33-7S-6W	T.D.3008	Dry

Kay County

Company	Well No.	Description	Depth	Init. Prod.
Comar	2	C NW NE SE 21-29N-1W	1945–1950	150
Comar	3	NEc SE 21-29-1W	1999–2005	123
Blackwell	1	C SE SE SE 9-27N-1W	2385–2387	61
Carter	8	C NW SW NW 35-25N-1 W O W D	T.D.3220	Dry
Carter	13	C SW NW NW 35-25-1W	T.D. 2810	Dry

Lincoln County

Company	Well No.	Description	Depth	Init. Prod.
Gypsy	1	SWc SE SE NW 1-15N-6E	3631–3660	13M
Magnolia	1	SWc NW NE 3-14N-5E	3397–3442	425
Prairie	1	NE NW 3-14N-5E	3392–3459	365

Muskogee County

Company	Well No.	Description	Depth	Init. Prod.
J. M. Foltz	2	CNL NE 33-14N-17E	2144–2210	Dry
H. E. Williams	1	NEc NE 18-15N-17E	1418–1424	Dry

Noble County

Company	Well No.	Description	Depth	Init. Prod.
Braden Bros	1	SEc NW NW SE 18-22-1W	T.D.1010	Dry

Okfuskee County—Cromwell

Company	Well No.	Description	Depth	Init. Prod.
Roxana	1	C SW NW SW 14-10N-8E	3545–3575	403
Snowden-McSweeney	1	C SW NE NW 14-10N-8E	3528–3600	225 & 6M

Okfuskee County—Papoose

Company	Well No.	Description	Depth	Init. Prod.
I. T. I. O	6	C SE NE SE 34-10N-9E	3309–3317	720
Cosden	1	C SE NE SW 35-10-9E	3313–3327	1200
Cosden	2	C SW NE SW 35-10-9E	3301–3321	1440
Cosden	3	C SE NW SW 35-10-9	3293–3319	840
Cosden	4	C SW NW SW 35-10-9	3303–3327	720
Amerada	1	C SW SW SW 36-10-9	3349–3368	1830&10M
Prairie	4	SWc 34-10N-9E	3279–3318	115

Okfuskee County

Company	Well No.	Description	Depth	Init. Prod.
Atlantic et al	2	CWL NE SW 36-12-10E	1240–1310	Dry

Oklahoma County

Company	Well No.	Description	Depth	Init. Prod.
Firestone	1	NWc SE 36-11N-3W	T.D.4479	Dry

Okmulgee County

Company	Well No.	Description	Depth	Init. Prod.
Sheldon et al	5	SEc SW NE 34-16-12E	2134–2162	213
Shaffer	3	NWc SE SE 17-15-11E	3019–3127	380
Vierson	4	NEc SW SE 2-13-12E OWD	2736–2742	5½M
Eagle Picher	3	SWc NW NW 33-13N-12E	756–765	5M
Schoenfeldt et al	2	CNL NE SW 4-11-12E	1560–1619	70
Twin State	2	NEc NW NW 10-14-14E OWD	2448–2450	Dry
Settle	3	NWc SE 32-14-14E OWD	T.D.1804	Dry
McFann	2	NEc SW NW 32-14-15E	T.D.1930	Dry

Osage County

Company	Well No.	Description	Depth	Init. Prod.
S. S. Home	83	SW SE NW 29-20-11E	1936–1951	4½M
Texas Co.	12	CWL NE 29-25-8E	2265–2280	50
Carter	13	SW SE SE 16-26-6E	2879–2964	315
Phillips	14	C NE NW NE 18-27-6E	2920–2993	150
Owen Osage	312	SWc 10-27-11E	1847–1858	1¾M
Duffield-Howard	1	NW SW SE 28-28-11E	964–1016	20
Simons	4	SW NE NE 36-29-11E	871–1030	2
Texas	2	CNL SW 13-22-8E	T.D.2440	Dry
McCune et al	1	NW NE SE 10-23-8E	T.D.2841	Dry
Douglas	1	SE NE SE 12-24-4E	T.D.3690	Dry
Douglas	1	NE NW NE 9-28-4E	T.D.3820	Dry
Oswego	2	SW NW 6-28-12E	T D.912	Dry

Pawnee County

Company	Well No.	Description	Depth	Init. Prod.
Mann	3	CNL NW NE 17-20-7E	2685–2703	90

Payne County

Company	Well No.	Description	Depth	Init. Prod.
Home O. & G	3	NEc SW NW 1-18-5E	1325–1336	16M

Seminole County—Cromwell

Company	Well No.	Description	Depth	Init. Prod.
Cosden	8	C NW NW SW 4-10-8E	3414–3448	400
Sinclair	4	C SE NE NE 4-10-8	3390–3465	1200
Sinclair	8	C NE NE NE 4-10-8	3372–3469	1000
Tidal-Osage	2	C SE NW NE 8-10-8	3427–3485	20

Seminole County—Wewoka

Company	Well No.	Description	Depth	Init. Prod.
Magnolia	3	C NW SE SE 25-8N-7E	3020–3053	40
P. & R.	3	C SE NE SE 31-8-8	3996–4041	82
Lewis-Clark	2	C SW SE SW 33-8-8	T. D. 2950	Dry

Stephens County

Company	Well No.	Description	Depth	Init. Prod.
Priddy	1	NEc NE SE 26-1N-9W	1940–1946	2M
Coline	2	CEL NW NE 31-1-8W	2108–2110	50
Magnolia	5	SEc SE NE 24-1S-9W	2038–2045	1½M
Magnolia	6	NEc SE 3-2S-5W	1662–1728	15

Tulsa County

Company	Well No.	Description	Depth	Init. Prod.
Echo	13	SWc SW NE 5-19N-12E	2064–2110	75
Sterling	4	SWc NE SW NW 1-18-12E	2274–2291	30
Thompson-Black	1	SWc SE 3-16N-12E	1685–1750	22M
Winemiller	4	CWL SW SW 18-16-13E	1040–1072	10
March	2	CEL SE SE 36-19-11E	T.D.1773	Dry

Wagoner County

Company	Well No.	Description	Depth	Init. Prod.
Peer	7	NEc SW 1-17N-17E	700–718	
Egloff	3	CSW SW NW 30-17N-17E	1317–1347	35
Carder	2	NWc NE SE 25-18N-15E	1460–1477	35
Bowles	1	NWc NE SW 26-18-16E	T.D.629	Dry

KANSAS

Chautauqua County

Company	Well No.	Description	Depth	Init. Prod.
Page et al	1	SWc SE SE 24-34-9E	T.D.2359	Dry

Coffey County

Company	Well No.	Description	Depth	Init. Prod.
Tidal	1	SWc NW SW 13-23-13E	T.D.1850	Dry

Cowley County

Company	Well No.	Description	Depth	Init. Prod.
W. Phillips-Marland	4	NWc SW SE 20-33-3E	3204–3244	1900
Scott et al	1	SEc NW 33-30-7E	T.D.10	Dry

Elk County

Company	Well No.	Description	Depth	Init. Prod.
Blaxter et al	2	SEc 5-30-9E	1755–1771	4M

Greenwood County

Company	Well No.	Description	Depth	Init. Prod.
Skelly	4	NWc SW 15-23-9E	2288–2397	150
Roth et al	2	SEc SW SE NE 29-23-10E	2340–2400	40
Phillips	18	SWc NE NW 32-23-10E	2279–2336	125
Henderson et al	4	NWc SE 22-22-11E	T. D. 2070	Dry
Empire	1	SWc NE 22-22-11E	T. D. 2143	Dry
Kittle et al	1	SEc NE NE 28-24-13E	T. D. 2071	Dry

Montgomery County

Company	Well No.	Description	Depth	Init. Prod.
Orlando	1	C SE NE 12-35-14E	T. D. 1910	Dry

Sumner County

Company	Well No.	Description	Depth	Init. Prod.
Champlin	1	C NE SE 17-30-1W	T. D. 3968	Dry
Natl. Union	1	SEc SW 16-35-1E	T. D. 2445	Dry

rels daily at 13 feet in sand topped at 3340 feet. Reports were that the sand has lightened up considerably in the last two feet drilled. The Dixie Co. is building rig for its No. 2 on the same lease located in the center NE, SW, SE of 18-8-10 and Prairie Oil and Gas Co. has rig up for its No. 1 Bruner in the NW corner of 20. Shaffer Oil and Refining Co. has an interest in this lease with the Prairie.

Another interesting development of the week came in the Alcorn Pool, Kay county, about six miles northwest of production in the Tonkawa field where Marland Oil Co. No. 2 Thomas is showing for a well in what apparently is the Wilcox sand, the same as the deep sand in Tonkawa. This well which is located in the SW, SW of 15-25-2 west topped the sand at 3970 feet and at two feet it was making about 4,000,000 feet of gas and spraying some oil. Preparations were being made to reduce the hole and to drill in with five-inch tools. Depth of this well indicates that the Wilcox is being found about 100 feet higher than the average at Tonkawa in the Tonkawa field proper.

Strenuous efforts have been made to keep up production of the deep wells, principally through shooting, but they have declined sharply nevertheless. Shots have varied from 15 to 100 quarts and in most cases have resulted in an immediate and considerable increase in output for a short time, after which production lapsed again into a decline, dropping approximately to where it was before the shot. During the last two days of the week it was reported that the deep sand production had dropped off nearly 4000 barrels and that the 87 wells were then producing less than 63,000 barrels daily.

Drilling Operations in Oklahoma, Kansas and N. Texas

	March 7——Week Ending——Feb. 28									
	Loc.	Rigs	Drg.	S.D.	Total	Loc.	Rigs	Drg.	S.D.	Total
Oklahoma										
Burbank	1	5	51	...	57	7	13	38	...	58
Other Osage	13	17	52	14	96	11	19	44	13	87
Bristow-Cushing	11	31	107	32	181	8	25	105	29	167
N. Oklahoma	1	21	79	61	162	2	34	70	59	165
S. Oklahoma	9	17	113	58	197	8	17	116	55	196
Muskogee	...	6	30	17	53	...	6	30	19	55
Okmulgee-Bristow	3	55	136	31	225	4	63	121	26	214
Tonkawa	1	4	43	11	59	1	4	43	12	60
Wewoka-Cromwell	15	34	245	36	330	17	47	239	36	339
Total Oklahoma	54	190	856	260	1360	58	228	806	249	1341
Kansas	82	102	243	147	574	55	72	221	155	503
N. Texas										
Eastland County	...	18	7	...	*25	...	1	13	8	22
Stephens County	...	16	39	24	79	...	16	32	25	73
Texas Panhandle	...	15	34	8	57	11	4	25	17	57
Mexia District	...	33	47	17	97	...	11	53	18	82
E. Texas Wildcats	...	5	6	26	37	...	7	7	23	37
W. Texas Wildcats	...	37	88	92	217	...	28	82	93	203
Wichita Falls	...	67	168	50	285	...	70	159	56	285
Total N. Texas	...	173	400	224	797	11	137	371	240	759
Grand Total	136	465	1499	631	2731	124	437	1398	644	2603

Completions North-Central Texas, Week Ended March 7

Brown County

Company	Well No. Farm	Location	Depth	Init. Prod.
Gilman et al	2 Moore	W. B. Smith Sur.	1236–1242	52
Mahlstadt-Mook	4 Newton	W. M. Miller Sur.	1277–1284	149

Falls County

Harrison et al	1 Mitchell	Anderson Sur.	T. D. 3917	Dry

Freestone County

Humble	10 Dodd	Ritchie Survey	3020–3032	400
Republic	6 Allmond	Wortham	2958–2990	200
Whellock-Collins	3 Smith	McNulty	2960–2997	900
Gulf	6 Lindley	Longbotham	T. D. 3202	Dry

Limestone County—Wortham

Boyd	5 Boyd	McNulty	3016–3018	150
Boyd	6 Boyd	McNulty	3008–3018	420
Boyd	7 Boyd	McNulty	2972–3003	600
Boyd	9 Ferguson	McNulty	2982–3019	100
Magnolia	19 Boyd	McNulty	3006–3031	100
Magnolia	20 Boyd	McNulty	3007–3120	250
Magnolia	23 Boyd	McNulty	3008–3120	300
Magnolia	24 Boyd	McNulty	3006–3019	200
Canfield et al	1 Boyd	McNulty	T. D. 3075	Dry

Navarro County

Garland-Kent	2 Berry	Berry Survey	1500–1650	15
Humble	4 Kent	Smith Survey	1512–1650	25
Humble	5 Kent	Smith	1570–1650	25
Humble	6 Kent	Smith	1500–1650	25
Pure	9 Kent	Smith	1574–1615	30
Pure	10 Kent	Smith	1508–1644	24
Pure	1 Keener	Love Survey	T. D. 3077	Dry
Andrews	2 Williamson	McNeil Survey	T. D. 3102	Dry
Bridewell-Gray	4 Harvard	Mathews	T. D. 655	Dry

Palo Pinto County

Zada Belle	1 Belding	Chacon	T. D. 2045	Dry
Scott-McClure	1 Riverbed	Brazos	T. D. 3697	Dry

Shackleford County

Phillips	3 Lynch	B.A.L.Survey Sec. 56	3456–3488	30

Throckmorton County

Larkin et al	2 Richards	Morgan	783–790	1M
Skinner et al	1 Mitchell	T.E.& L.Sec.2152	T. D. 1605	Dry

Young County

Mutual	1 Gledwell	Brown Survey	2382–2400	25
Gulf	4 Schlegel	B.B.B.& C.Sec.1	1173–1186	125
Murchison et al	9 Gambril	B.B.B.& C.Sec.1	1212–1222	150
Murchison et al	10 Gambril	B.B.B.& C.Sec.1	1202–1216	250
Murchison et al	11 Gambril	B.B.B.& C.Sec.1	1183–1213	260
Murchinson et al	12 Gambril	B.B.B.& C.Sec.1	1210–1224	125
Murchinson et al	3 Schlegel	B.B.B.& C.Sec.1	1176–1207	90
Texas	2 Gambril	B.B.B.& C.Sec.1	1188–1194	150

Completions in North Louisiana and Arkansas Week Ended March 5

LOUISIANA

Cotton Valley

Company	Well	Location	Depth	Yield
Crusader Oil & P. Co	Hope Estate B-7	24–21–10	2515	250
Crusader Oil & P. Co	Hope Estate B-10	13–21–10	2514	225
Crusader Oil & P. Co	Hope Estate B-11	13–21–10	2540	60
Crusader Oil & P. Co	Hope Estate B-13	24–21–10	2515	5 m.c.ft.gas
Humble O. & R. Co	Gray No. 2	26–21–10	2550	325
Ohio Oil Co	Bodcaw No. 16	13–21–10	2510	100
Ohio Oil Co	Bodcaw No. 17	13–21–10	2510	150

Webster Parish—Spring Hill

Fortuna Oil Co	Nickerson No. 1	33–23–10	2663	20 m.c.ft.gas

Caddo Parish

Thall Oil Co	Bashara No. 9	23–21–15	1635	25
Texas Oil Co	Caddo M.C.Co.No.43	23–21–15	3009	junk. aband.

Claiborne Parish

J. P. Evans—Atlantic O. P. Co	Taylor No. 1	5–19–5	2860	s.w.aband.

Waskom—Caddo Parish

Glassell & Meyers	Florsheim No. 1	9–17–16	1475	40 m.c.ft.gas
Glassell & Meyers	Florsheim No. 2	9–17–16	1920	10 m.c.ft.gas

TEXAS

Waskom—Harrison County

Cox et al	Powell No. 1	M. D. Edwards HRS	975	10 m.c.ft.gas

Panola County

Gross et al	Carriker No. 1	W. K. Warnell HRS	2513	dry aband.

ARKANSAS

Nevada County

Company	Well	Location	Depth	Yield
Smitherman & McDonald	McKinney No. 7	10–14–21	1220	100

Smackover

Bray-Hawthorne Oil Co	Hays No. 1	12–15–17	2593	s.w.aband.
Cumberland Pet. Co	J. D. Reynolds No. 4	23–15–17	2313	50
Guy Freeling	Gibson No. 1	26–15–17	2340	100
Gillilan Oil Co	La Grone S-5	36–15–17	2300	35
Hunt et al	Halton C-12	26–15–17	2348	50
Hunt et al	Street No. 3	26–15–17	2340	35
Texas Oil Co	J. D. Reynolds No. 6	23–15–17	2355	80
Ellis & Dumas	Forrest City Box Co. No. 4	31–15–16	2275	85
Foster & McWilliams	Neeley No. 1	26–15–16	2265	120
Giles et al	Hardin No. 1	28–15–16	2293	junk. aband.
J. W. King	Jackson No. 2	27–15–16	2315	75
Texas Oil Co	Berry No. 7	33–15–15	1995	350
Broderick & Calvert	Bradford No. 2	8–16–15	2405	550
Hickman et al	Graves No. 6	3–16–15	2370	1500
Hollyfield et al	Giller No. 7	11–16–15	2005	100
Houston Oil Co	Milner No. 1	3–16–15	2295	100 10 m. ft. gas
Howell et al	Williams No. 4	3–16–15	1985	200
Gulf Refining Co	L. Werner S. M. Co. No. A-10	26–15–17	2325	15
Gulf Refining Co	L Werner S. M. Co. No. 38	32–15–16	2250	25
Gulf Refining Co	J. Goodwin A-4	5–16–15	2275	25 m.ft. gas
Gulf Refining Co	Howard No. 1	13–16–17	2322	40

January Gasoline Output Gained; Stocks Increased 150 Million Gals.

WASHINGTON, March 7 GASOLINE production in the United States during January amounted to 831,652,370 gallons, constituting the largest monthly output in the history of the industry, according to statistics compiled by the Bureau of Mines.

The January gasoline production exceeded by 36,000,000 gallons, or 4.5 per cent, the output for December, 1924, in which month a high record production mark had been set. January gasoline production represents a daily average of 26,800,000 gallons, as compared with the record-breaking daily average of 25,665,000 gallons attained in December. Despite these record-breaking production figures, however, a decrease from December figures in the amount of crude oil run to stills was registered.

Domestic gasoline consumption for January amounted to 59),784 569 gallons a daily average of 19,350,000 gallons and a decrease of 9.3 per cent from the December figures. This is, however, 20 per cent higher than the domestic gasoline demand for January, 1924, when the total was 500,000,000 gallons. Exports of gasoline during January were 96,000,000 gallons, a decrease from the previous month.

Stocks of gasoline reported to the Bureau of Mines as of Feb. 1 show an increase of 150,000,000 gallons during the month, there being 1,330,235,880 gallons on hand at the refineries. These stocks represent 68 days' gasoline supply at the January rate of domestic demand. This compares with 74 days' supply on hand a year previous, and 55 days' supply on hand a month before.

The production of kerosene during January was 248,000,000 gallons, an increase over the previous month of 4,000,000 gallons. Exports were 70,000,000 gallons, a drop from the previous month of 16,000,000 gallons. Domestic kerosene demand also fell off, its total, 138,000,000 gallons, being 18,000,000 gallons below the high figures of the previous month. Stocks were therefore increased 40,000,000 gallons, standing at 378,600,000 gallons on Feb. 1.

The production of gas and fuel oils during January was 1,171,000,000 gallons, a daily average of 37,800,000 gallons. This represents a decrease in total production from the previous month of 28,000,000 gallons. Domestic demand for these oils reached a new record figure of 1,169,000,000 gallons, this being 65,000,000 gallons, or 59 per cent, over the record December figures. Stocks on hand Feb. 1 were 1,620,000,000 gallons, a decrease from the previous month of 50 000 000 gallons.

The production of lubricants during January was 103,000,000 gallons, a decrease from the previous month of 1,000,000 gallons. Exports increased 10,000,000 gallons or 35.5 per cent over December. Domestic demand, however, fell off 7,000,000 gallons, and stocks were increased 11,000,000 gallons to 268,500,000 gallons, the highest figure ever recorded.

The production of paraffin wax was 54,300,000 pounds, an increase over the previous month of 1,500,000 pounds. Exports and domestic demand remained steady, and stocks were reduced less than 1,000,000 pounds. However, stocks of wax are now lower than at any time since the latter half of 1917.

During the month of January the Bureau of Mines received reports from 288 operating refineries, with an aggregate daily crude oil capacity of 2,404,167 barrels, running to stills a daily average of 1,849,458 barrels of both foreign and domestic crude oil, or 76.9 per cent of their daily operating capacity. This represents a decrease of 2.7 per cent from the refinery operations of the previous month, but an increase of 0.1 per cent over the operations of January, 1924.

COMPARATIVE ANALYSIS FOR JANUARY, 1925

(All 1924 figures revised to compare with our 1924 annual report.)

	Production	Imports*	Exports*	Stocks End of period	Domestic Demand
Gasoline					
Jan., 1924	695,322,500	19,309,325	88,823,007	1,200,287,779	500,420,689
Nov., 1924	762,046,475	14,958,267	97,851,124	1,133,168,656	698,359,199
Dec., 1924	795,613,195	14,708,629	101,398,308	1,179,503,185	662,588,987
Jan., 1925	831,652,370	14,447,766	95,582,872	1,330,235,880	599,784,569
Kerosene					
Jan., 1924	217,767,931	20,536	64,740,189	300,265,249	135,978,696
Nov., 1924	233,520,679	36,240	67,627,519	337,448,021	136,605,981
Dec., 1924	243,831,817	80,052	86,248,062	338,825,779	156,286,049
Jan., 1925	247,726,852	72,740	70,022,610	378,598,381	138,004,380
Gas and Fuel Oils					
Jan., 1924 1,062,892,393		36,471,249	109,908,000	1,471,544,338	1,032,946,015
Nov., 1924 1,134,146,744		32,266,576	124,965,901	1,641,089,969	1,011,943,344
Dec., 1924 1,199,093,235		46,189,123	111,988,496	1,670,508,938	1,103,874,893
Jan., 1925 1,171,402,042		44,246,327	97,104,280	1,619,688,131	1,169,364,896
Lubricants					
Jan., 1924	94,534,650	2,897	25,175,404	243,005,205	69,142,008
Nov., 1924	94,947,882	23,803	30,143,843	242,246,054	70,580,286
Dec., 1924	104,391,096	23,051	29,059,931	257,336,238	60,264,032
Jan., 1925	103,164,250	58,147	39,371,710	268,469,446	52,717,479
Wax					
Jan., 1924	42,523,461	741,873	39,349,383	144,849,698	23,772,683
Nov., 1924	43 002,675	765,647	28,654,033	92,676,238	13,515,292
Dec., 1924	52,859,199	505,653	31,603,369	89,666,408	24,771,313
Jan., 1925	54,310,455	1,029,814	31,928,829	88,970,109	24,107,739
Crude Oil (a) (Barrels of 42 gallons.)				(b)	
Jan., 1924	56,455,000	6,303,000	1,528,000	367,834,558	61,428,865
Nov., 1924	56,297,000	6,649,000	1,453,000	400,061,897	64,124,294
Dec., 1924	56,617,000	5,841,000	1,044,000	393,891,185	67,584,712
Jan., 1925	59,284,000	7,025,000	1,149,000	393,498,854	65,552,331

*From Bureau of Foreign and Domestic Commerce, January, 1925. Exports do not include shipments to Alaska, Hawaii, and Porto Rico; these data not available.
(a) From United States Geological Survey (revised figures used when available).
(b) Pipeline, tank and refinery stocks.

Boyce & Veeder Co. Files Amended Petition

Staff Special

CHICAGO, March 10.—Attorneys for Boyce & Veeder Co. this afternoon filed an amended declaration in their million dollar damage suit against National Petroleum Marketers' Association, this being the last of 30 days granted for the accomplishment by the superior court of Cook county. It was couched in 36 pages of legal sized paper and contained eight counts.

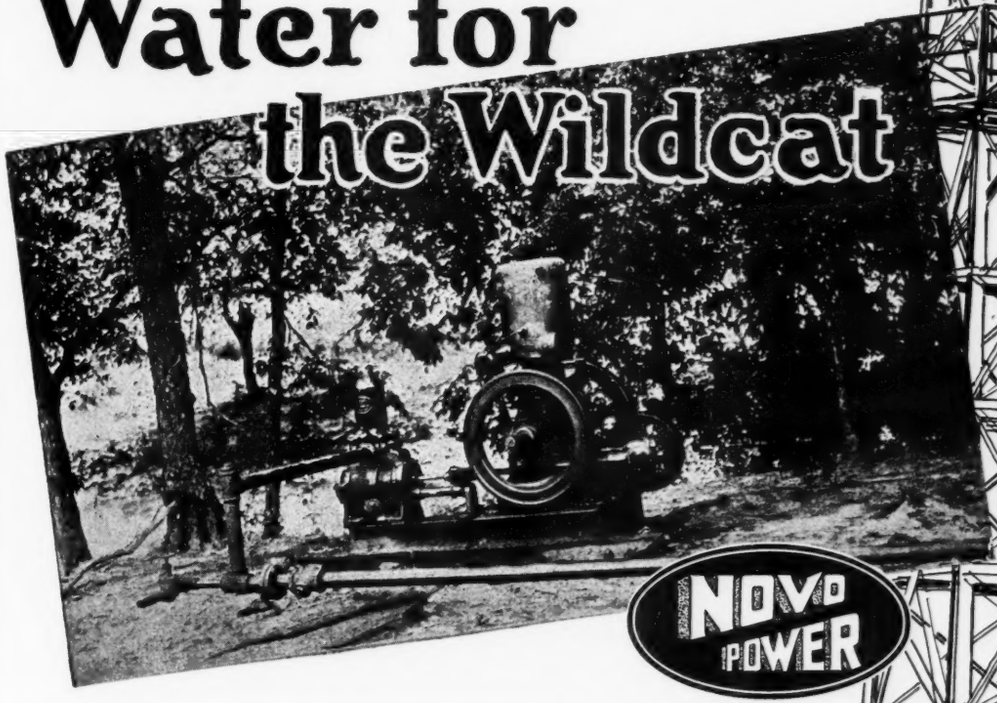
Without legal training it is virtually impossible for anybody to see any difference between the first seven of these counts and similar paragraphs in the original declaration which was thrown out a month ago when the court sustained the defendants general demurrer thereto.

Parenthetical explanation to the court of certain subtle meanings alleged to be hidden in the words of L. V. Nicholas constitute a good portion of the document.

In the eighth count the plaintiff proposes to set forth special damages in compliance with the court's previous order. The claims are that Boyce-ite business fell off to the extent of $100,000 per month for two months between the time Nicholas issued his confidential letter to members and the day the damage suit was filed, $50,000 monthly for a year thereafter totaling $800,000 and the other $200,000 was lost on advertising used in effort to counteract effects of the contents of the controverted letter.

LOS ANGELES.—The Associated Oil Co. has completed a 10-inch pipe line extending a half mile on the ocean bed for loading deep sea tankers which are unable to dock in the Ventura harbor because of shallow water. The line is connected with flexible hose fitted with valves and made fast by buoys. Through the pumping station on shore, handling about 4000 barrels per hour, the average tanker can be loaded in about 15 hours.

Water for the Wildcat

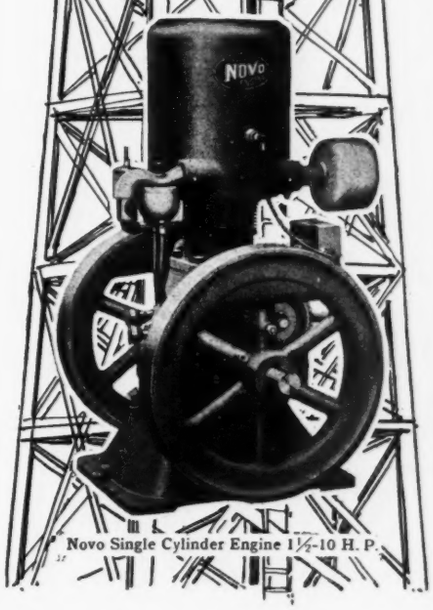


IF there's water within miles, a *Novo Type U Pump* will bring it to you.

Novo Type U Pumps are built in several sizes, with pressures up to 500 pounds. The pump itself is easily portable, and costs about one-half as much as a steam pump of equal capacity. It requires no attention other than keeping it supplied with fuel (gasoline, kerosene or gas) and oil. It will operate 24 hours a day, week in and week out.

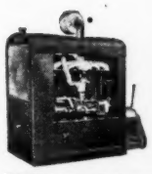
Others know of *Novo type U Pump* economy and reliability. You can forget your water supply problem by putting a *Novo type U Pump* on the job.

Novo also builds one, two and four cylinder 1½ to 40 H.P. engines, hoists, pumps and air compressors in many sizes, types and capacities. Consult us on any power problems.



Novo Single Cylinder Engine 1½-10 H. P.

NOVO ENGINE CO.
Clarence E. Bement, Vice-Pres. & Gen. Mgr.
LANSING, MICHIGAN
Cable Address: "NOVO LANSING"
Distributors Throughout the World



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Open and closed top diaphragm—centrifugal—deep well—single, duplex double acting and triplex pressure pumps.

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Three sizes—up to 170 cubic feet—with steel housings mounted on trucks. Combination hoists and compressors

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An "emulsion" represents a condition of a liquid which can be fully, scientifically and economically corrected by use of the chemical process. Use TRET-O-LITE process when you have cut oil and tank bottoms that require treating.

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Steel Market Remains Active in Pipe, Plate and Sheet Ends

By Special Correspondent

PITTSBURGH, March 10

INTERSPERSED with the regular run of orders for oil country tubular goods coming to the pipe mills is an occasional worth-while tonnage, which helps measurably to increase backlogs. For instance a Youngstown, O., maker has just booked an order for 75 miles of 8-inch line pipe from the Sinclair Pipe Line Co., for shipment to the southwest.

This amounts to about 6200 tons. The Oklahoma Pipe Line Co., Muskogee, Okla., of which F. E. Le Masters is general superintendent, is about to enter the market for 250 miles of 8-inch to loop its present system from Cromwell, Okla., to De Queen, Ark. about 19,000 tons. The miscellaneous business referred to above comes in every day or so in the form of orders for pipe to drill one, two or three wells and usually amounts to three or five carloads at a time.

Occasionally, however, an order calls for around 10 carloads or more. Distribution is good and jobbers are ordering here and there for stock. Specifications are coming from all parts of the south, southwest and west and even from certain sections further north. Pipe mill operations continue to average above 90 per cent and prices are held firmly for the reason that the outlook is so bright.

Casing and oil line pipe shipped abroad in January this year amounted 3849 tons as against 12,022 tons in the same month, last year. In the 12 months ended Jan. 31, this year, 36,668 tons were shipped to foreign countries against 48,943 in the 12 months, ended Jan. 31, 1924. These figures were issued by the department of commerce, which also states that the value of oil well machinery shipped abroad in January was $526,563 this year as compared with $522,040 in January, 1924. For seven months, ended Jan. 31, 1925, exports of this nature were valued at $3,626,690 as against $4,261,844 for the same period, the preceding year.

Plate demand continues to grow, with the appearance of a few inquiries for oil storage tanks which have been scarce for many weeks. The Standard Oil Co. of Indiana, which has just awarded the American Bridge Co., a contract for 15,000 tons for oil storage tanks, wants stills requiring 600 tons.

The Anglo-Mexican Petroleum Co., wants tanks taking 1000 tons and the Pan American Petroleum Corp., San Francisco, wants tanks taking 400 tons. An inquiry is expected shortly from the Humble Oil Co., Houston, for a few tanks for Texas installation. Oil stills for a company at Salt Lake City, Utah, taking 255 tons were awarded an unnamed middle western fabricator. The Pan-American Oil Co., Oakland, Cal. which recently ordered 10 tanks for San Francisco, involving 400 tons to the Western Pipe & Steel Co., has awarded 17 small tanks from the Steel Tank & Pipe Co., for Oakland, requiring 700 tons.

Additional tank cars have been let. The Quaker City Tank Line, which recently ordered 200 from the American Car & Foundry Co., has placed a similar order with the Standard Tank Car Co., which is understood to have received an order for 50 from the McKean County Refining Co., Bradford, Pa. The Craig Oil Co., Toledo, O. ordered 15 of 6050 gallon capacity from this builder and the Waite-Phillips Co., Tulso, Okla., ordered 50 of 8050-gallon capacity from it as well. The Santa Fe is one of the roads expected to enter the market shortly for tank cars.

Plates are quoted at 2.10 to 2.20 cents a pound, the latter figure not holding so well. In fact prices below 2.10 cents have appeared in eastern Pennsylvania in competitive markets.

Figures just issued by the department of commerce show that of the 26,575 tons of plate construction awarded in January, this year, only 4349 tons went into oil storage tanks while of the 48,850 tons let in December, 1924, 26,449 tons were for oil storage tanks. This shows a considerable drop in storage tank orders from December to January. Plate bookings for all of 1924 were 305,697 tons of which 123,445 tons represented oil tanks.

Sheet makers are commencing to note an improvement in the demand for small bolted portable oil tanks, for which they furnish blue annealed sheets. Several inquiries have lately developed prices of 2.70 to 2.80 cents, f. o. b. Pittsburgh district sheet mills.

The Humble Oil & Refining Corp., Humble building, Houston, Tex., with H. C. Weiss, vice president in charge, has bought two gasoline plants and a booster station in the Breckenridge, Texas, field from the Hope Engineering Co., the Atlantic Oil Producing Co., and the Walker Consolidated Oil Co.

The Standard Oil Co. of Indiana plans a storage and distributing plant at Carolina and Ninth St., Mason City, Ia., with a machine ship in connection.

The Liquid Seal Oil Well Pump Co., Bartlesville, Okla., capital $50,000, incorporated by C. H. Edgerton, F. B. Edgerton, F. B. Collins and M. E. Michaelson will manufacture and distribute pumps for oil wells

The Sand Springs Home, Tulsa, (Charles Page interests) has plans for an absorption gasoline plant in the Osage district, six miles north of Sand Springs. Harrison H. Young, Sand Springs, is superintendent of the gasoline department.

The Gilliland Oil Co., Tulsa, Okla., has announced plans for a 500-barrel skimming plant to be built at Rosewell, New Mexico, with a 13-mile 4-inch line to the Artesia field. R. C. Gilliland is manager of

Advertisement for Bids to Purchase Crude and Natural Gas Gasoline from Wells operated by the Interior Department in the Red River Bed

SEALED PROPOSALS will be received by the Secretary of the Interior until noon of March 23, 1925, for the purchase of Oil and Natural Gas Gasoline obtained by the Interior Department from wells under its jurisdiction in the Red River bed. The bids on oil and natural gas gasoline should be submitted separately.

At the present time the daily production of crude from these wells is about 650 barrels and the natural gas involved is about 16 million cubic feet per month having a gasoline content of about 5¼ gallons per thousand cubic feet of gas.

Bidders should indicate their price for oil in terms of a differential with respect to the highest price paid by any one of the following companies, for oil of like gravity from the fields in Wichita County, Texas.

Prairie Oil & Gas Co.
Texas Pipeline Co.
Humble Pipe Line Co.
Magnolia Petroleum Corp.

The contractor for the oil will be required to accept it at the gage tanks now installed on the property and subject to the gaging methods and deductions now in effect.

The bid on natural gas gasoline should be a percentage of the total marketable gasoline recoverable, to be paid either in gasoline or cash as the Department may elect. If payment is taken in cash the price shall be the same as that currently received by the contractor for his share of the gasoline. The natural gas will be delivered on the lease to the successful bidder at the wells or gas traps in a manner now in effect and the contractor will be required to return the dry gas at a suitable point or points to the gas distributing system now installed on the property. The contractor will be allowed to use a reasonable amount of dry gas for plant operation, the remainder to be returned to the properties as fuel.

Payment for either oil or natural gas gasoline shall be made at least twice a month.

As part or all of the property involved may pass at any time from the direct operation of the Department to lessees, no specific guarantee as to the duration of the contracts can be given except that they will cover such oil and natural gas gasoline as may be produced while these properties are operated by the Interior Department. A clause will be inserted in the contract so that in the event the oil or gas applicable to the proposed contract shall be reduced to one-half the original quantity or less because of such leases to private operators, the contractor will have the right to withdraw from his agreement by giving sixty days' notice in writing to the Secretary of the Interior.

This clause will not apply to ordinary decline of production. Bidders are required to submit individual bids for the oil and for the natural gas gasoline. There is, however, no objection to any bidder submitting a bid on both oil and natural gas gasoline.

The successful bidder will be required to furnish a surety bond in the amount of $50,000 on oil and $4,000 on natural gas gasoline for the faithful performance of his agreement.

The right is reserved to reject any or all bids as the interest of the Government may require. Proposals must be securely enveloped and marked, "Proposals for the Purchase of Oil and Natural Gas Gasoline from Red River Bed," and addressed to the Secretary of the Interior, Washington, D. C.

ENGINEERS & CONTRACTORS IN NATURAL GAS AND OIL

68 Miles of Pipe Line in 78 Days

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There were 63 miles of 12-inch pipe, and 5 miles of 16-inch pipe—average cross-country going, up hill and down, on the level, across rivers and streams.

First pipe laid September 1st—line finished, tested and turned into service November 29th—78 actual working days and a daily average of 4600 feet of line laid.

November 11th a "world's record" was made—14,780 feet of 12-inch pipe laid.

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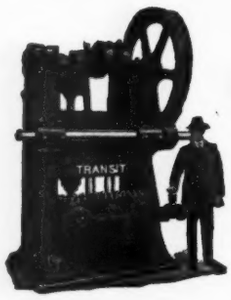
TRANSIT PUMPS



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The Cross Cracking Process

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Then why aggravate the situation by feeding a high carbon content residual oil to the cracking process?

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19th & Harrison Streets, San Francisco, Cal.
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the New Mexican division with headquarters at Rosewell.

D. E. Foster, Tulsa, Okla., is completing the installation of an absorption gasoline plant for Deer Creek Gasoline Co., in Deer Creek field, Grant county, Okla. R. C. Jones, Cushing, Okla., and E. C. Mullendore, Cleveland, Okla., are principal owners of the new plant.

The Braden Refining Co., Tulsa, whose plant at Perry, Okla., was recently destroyed by fire with a loss of $200,000 is to be rebuilt. Oil Refinery stills, boilers and other equipment will be needed. G. E. Braden, Admiral and Madison st. is vice president and general manager.

The American Oil Co., Baltimore, Lewis Blaustein, president, is having plants made for alterations to its oil plant with the erection of new storage tanks at Philadelphia.

The Phillips Petroleum Co., Bartlesville, Okla., is closing arrangements to purchase two gasoline refining plants near Breckenridge, Tex., which heretofore have been operated by W. G. Swenson and W. C. Wooten. The consideration is understood to have been $500,000 and the new owner is considering extensions.

The Sinclair Refining Co., 45 Nassau street, New York is planning an oil storage and distributing plant for the Cumberland, Mo. district, which will cost approximately $100,000 with equipment.

The Pacific Oil Tool Co., Los Angeles, has placed an order with the G. A. Gray Co., Cincinnati, O., for a 36-inch planer.

The Motor Fuel Corp., Franklin, Pa., was recently organized by C. B. McFarlin, Eau Claire, Pa., and associates. Capital stock is $100,000 and the company will establish a plant for the refining of heavy hydrocarbon oils into gasoline and naphtha. Equipment requirements include agitators, pumps and transmission as well as conveying machinery.

The Humphreys-Boyd Oil Co., Mexia, Texas, is completing plans for the construction of a storage and distributing plant to cost $150,000 with equipment.

The Fowler-Lewis Oil Refining Co., St. Elmo, Tenn., was recently organized with headquarters at Chattanooga, Tenn. It plans a 1-story oil reclaiming and distributing plant, 60 x 1000 feet, to cost $35,000 with equipment. Edward Fowler, 5415 Beulah street, Chattanooga, is one of the company's heads.

The Newkirk Refining Co., Newkirk, Okla., recently incorporated for $300,000 by C. N. Atkinson and J. M. Beesley of Newkirk, and W. D. Campbell at Ponca City, Okla., will require steam stills, boilers and miscellaneous refinery equipment. Mr. Beesley is general manager.

Considerable machinery will be required in the overhauling of the plants and equipment of the Constantin Oil Corp., Tulsa, whose receivership is being terminated, preparatory to a reorganization of the company and a resumption of its operations. Pat Malloy, First National Bank building, Tulsa, formerly vice president, is receiver.

Refinery Products Directory

REFINERIES all over the country are listed according to the products they are making today, or that they have in stock, or will make on reasonable demand. Refineries shut down for any length of time and whose stocks of products are exhausted, are eliminated so far as possible.

It is requested, in justice to all, that all inquiries by telephone and telegraph be prepaid and this is recommended by the oil associations.

Methods of testing, approved by oil and scientific associations and the U. S. Bureau of Standards, are used. Grades of products listed, as well as names of refineries, are revised each week.

Ohio

90 Vis. at 100° F. No. 2 Color (Pale)
Craig Oil Co., Toledo, O.

200 Vis. at 100° F. No. 3 Color (Pale)
Craig Oil Co., Toledo, O.

Oklahoma

200 Vis. No. 3 color
Bell Oil & Gas Co., Tulsa, Okla.

Cylinder Oils

Pennsylvania

600 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa
Crystal Oil Works, Oil City, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
Kendall Refining Co., Bradford, Pa.
Lucinda Refining Co., Lucinda, Pa.
McKean County Refining Co., Bradford, Pa.

635 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.

650 Steam Refined
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
McKean County Refining Co., Bradford, Pa.
Seneca Oil Works, Warren, Pa.

600 Flash
Bradford Oil Refg. Co., Bradford, Pa.
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
McKean County Refining Co., Bradford, Pa.
Waverly Oil Works, Pittsburgh, Pa.

600 Warren E.
Butler County Oil Refg. Co., Bruin, Pa.
Pennsylvania Oil Products Refining Co., Warren, Pa.

600 Oil City E.
Butler County Oil Refg. Co., Bruin, Pa.
Independent Refining Co., Oil City, Pa.
Pennsylvania Oil Products Refining Co., Warren, Pa.

600 Filtered D.
Butler County Oil Refg. Co., Bruin, Pa.
Pennsylvania Oil Products Refining Co., Warren, Pa.

Cold Test Stock (bright filtered)
Carnegie Refg. Co., Carnegie, Pa.
Kendall Refining Co., Bradford, Pa.
Mutual Refg. Co., Warren, Pa.
Pennsylvania Oil Products Refining Co., Warren, Pa.
Warr-Penn Refining Co., Warren, Pa.

Cold Test Stock (dark filtered)
Carnegie Refg. Co. Carnegie, Pa.
Pennsylvania Oil Products Refining Co., Warren, Pa.
Warr-Penn Refining Co., Warren, Pa.

Black Oil
Emery Mfg. Co., Bradford, Pa.

Kentucky

600 Steam Refined
Stoll Oil Refining Co., Louisville, Ky.

Motor Oils

Pennsylvania—100% Pure

Butler County Oil Refg. Co., Bruin, Pa.
Continental Refining Co., Oil City, Pa.
Empire Oil & Grease Co., Inc., Oil City, Pa.
Independent Refining Co., Oil City, Pa.
Seneca Oil Works, Warren, Pa.

Ohio

Craig Oil Co., Toledo, O.

Wax Distillate

Pennsylvania

34-34½ Gravity
Bradford Oil Refg. Co., Bradford, Pa.

Wax

Pennsylvania

122-124 White Crude Scale
Butler County Oil Refg. Co., Bruin, Pa.
Emery Mfg. Co., Bradford, Pa.
Independent Refining Co., Oil City, Pa.
Kendall Refining Co., Bradford, Pa.

128-130 Refined
Waverly Oil Works Co., Pittsburgh, Pa.

124-126 Crude Scale (off white)
Crystal Oil Works, Oil City, Pa.

Oklahoma

124-126 White Crude Scale
Bell Oil & Gas Co., Tulsa, Okla.

Fuel Oil

Pennsylvania

36-40 Fuel Oil
Bradford Oil Refg. Co., Bradford, Pa.
Carnegie Refg. Co. Carnegie, Pa.
Emery Mfg. Co., Bradford, Pa.
Lucinda Refining Co., Lucinda, Pa.
McKean County Refining Co., Bradford, Pa.

30-34 Fuel Oil
Butler County Oil Refg. Co., Bruin, Pa.
Independent Refining Co., Oil City, Pa.
Mutual Refg. Co., Warren, Pa

Oklahoma

26-30 Fuel Oil
Bolene Refining Co., Enid, Okla.

30-32 Fuel Oil
Bolene Refining Co., Enid, Okla.

38-40 Straw Distillate
Bolene Refining Co., Enid, Okla.

32-36 Gas Oil
Bolene Refining Co., Enid, Okla.

North Louisiana

18-22 Fuel Oil
Caddo Central Oil & Refining Co., Shreveport, La.

Kentucky

38-40 Gas Oil (light)
Ashland Refining Co., Ashland, Ky.

34-38 Gas Oil (light)
Great Southern Refining Co., Lexington, Ky.

34-38 Gas Oil (dark)
Ashland Refining Co., Ashland, Ky.
Great Southern Refining Co., Lexington, Ky.

30-32 Fuel Oil
Ashland Refining Co., Ashland, Ky.

28-30 Fuel Oil
Ashland Refining Co., Ashland, Ky.

24-26 Fuel Oil
Ashland Refining Co., Ashland, Ky.
Great Southern Refining Co., Lexington, Ky.

Oklahoma

32-36 Gas Oil
Roxana Petroleum Corp., St. Louis, Mo.

IN THE MAILBAG

The Service Station Spread Again

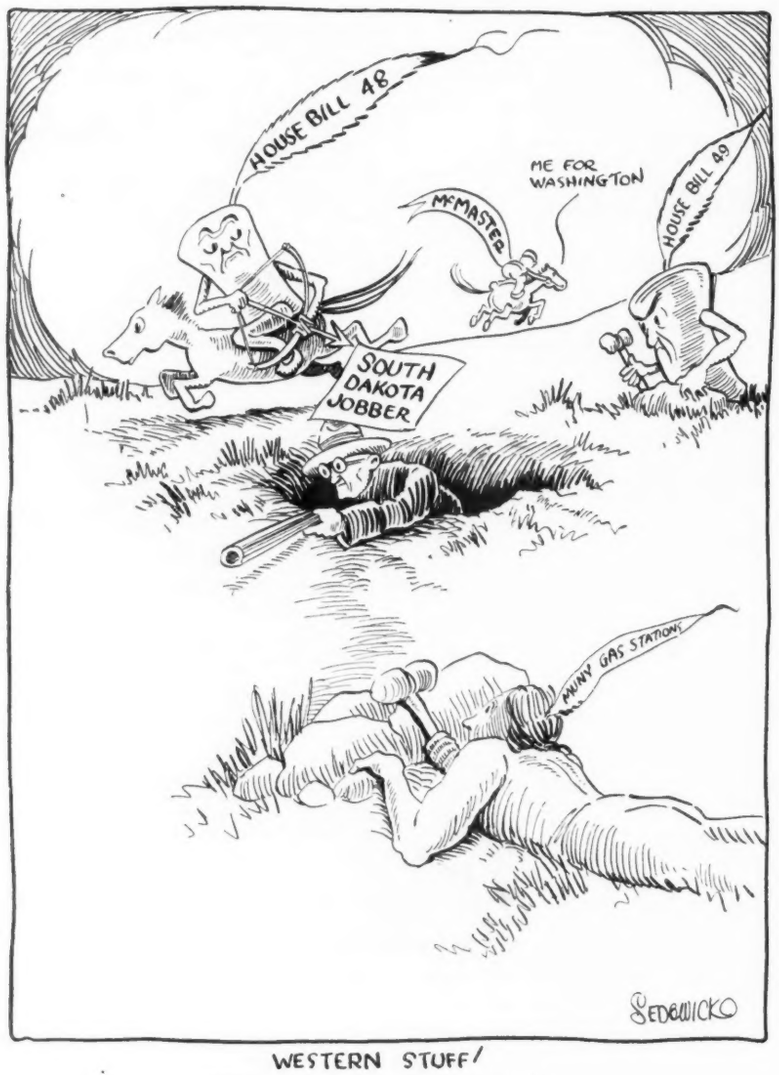
"THE thing we would like to have the National Petroleum News do is to fight the two-cent spread between tank wagon and service station prices. This is inefficient and unreasonable. It is as absurd as a grocer selling a sack of flour at $2 at his store, or $1.75 delivered to your home." This from an Independent oil company in Iowa.

This publication has long maintained that one principal cause for the public's criticism of gasoline prices is because the business operates on an antiquated price structure that the public does not understand and that could hardly be defended if the public could understand it.

The tank wagon structure was adopted to sell kerosene in small amounts to consumers and grocery stores. It was warped and stretched to accommodate the tremendous gasoline business. What is more absurd than to charge a man a retail price for gasoline at a service station and then carry it ten miles in the country to his shed or garage and sell it to him 2 cents cheaper.

The industry should reconstruct its price structure so that there is one price to the consumer, whether he buys at the station or from the tank wagon. Other classes of trade, such as big consumers, municipal and state institutions, and retail distributors, should each buy at a recognized differential under the retail price, 1 cent, 2 cents, 3 cents, whatever their classification granted.

The differential between the price the retail distributor pays and the price he sells, the service station price, should not be so great as to encourage extravagance in station operation and entice outsiders to get into the business.



WESTERN STUFF!
(With apologies to Remington)

The Full Story of Continental Trading

"IS THERE any particular reason why your publication has had so little to say about the Continental Trading Co. deal in Canada that the newspapers are talking about?" asks a reader. "One would think National Petroleum News could do no better service to the oil industry than to tell the full facts concerning this deal."

That would be a valuable service indeed to the oil industry, and this publication hopes to be the one source to tell everything about this transaction that can be brought to light. It has been very difficult to get any information in detail as to what was done there and how it relates to the Naval Reserve leases. Government investigators have refused to talk about it. They are holding what they have learned to divulge at the actual trial.

Perhaps the full facts may come out at the equity trial on the Teapot Dome lease at Cheyenne. This publication is prepared to report that trial most fully. It has already printed more actual facts about the Continental Trading Co. than anyone else, newspapers included. It would like nothing better than to publish the entire story, regardless as to what developments it might disclose. The efforts of its Editorial Staff will not let up until that is done.

Six-Cent Spread A Fallacy Indeed

That the oil marketing business still beckons with alluring visions of profits to outsiders who know little or nothing of the business is indicated by the letters which start coming to this office along this early in the spring—the same as in years past—asking for information about how to get into the business.

The ignorance of the writers in most cases concerning the business they have made up their minds to enter is almost amusing. Some ask for good locations to start up in business. Others naively put in a blanket order for all the information that they will need to set up and engage in the business of distributing gasoline and motor oils.

About the best this Editorial Department can do is to point out a few principles of the oil business that a man should understand before he decides to voluntarily become a part of it. Even more important is the fact that any company or individual figuring on any business or profits for the future in the marketing of gasoline should base their estimates on a total margin for the distributing company of not over 4 cents.

Perhaps this will prove to be too high. At any rate with competition what it bids fair to be this season, it is high fallacy to figure on a margin of 6 or 7 cents. Yet it is safe to say most of the newcomers thinking of starting up in the oil marketing business now are counting their profits on a spread of not less than 6 cents a gallon.

THE EDITORS' VIEWPOINT

Boyce-ite in England Now

NOW British automobile owners are hearing about "Concentrated Boyce-ite—the super fuel ingredient that will remove knocks, increase mileage and make cars like new."

At least in one trade paper in England, dated Jan. 9, Boyce is offering presumably his old product with his old type of advertising and sales talk with which he appealed to the American public up to a few months ago. Since that time, so far as this paper's observation goes, and we may be wrong, Boyce has said nothing in this country about his product removing carbon or increasing mileage; but he has been advertising only a "Boyce-ite, blue-green gasoline" which he says is good gasoline.

To the British public he says "Boyce-ite will remove from any motor, regardless of size or design, carbon knocks." Also "new cars should be driven with Boyce-ite in the petrol. The necessity of ever removing the cylinder head for a cleaning will then never arrive. New cars stay like new."

As to endorsement, the British advertising says, "Boyce-ite now carries the endorsement of the leading experts, the recommendation of engineers of the highest reputation and above all the profound and unqualified approval of a large section of the motoring public, for whom it has saved thousands of pounds in money and endless time and trouble. Boyce-ite has been subjected to severe tests and has proved the absolute truth of anything that is claimed for it." Possibly the British engineers have found what the American engineers didn't find. The oil industry here would like to know.—W. C. P.

Who Benefits the Most

THERE is not a particle of equity in building roads with money received from a gasoline tax," Horatio S. Earle, Michigan state highway commissioner, told delegates to a highway conference in Ann Arbor, Mich., recently. "The only way to finance new roads is through the issuance of bonds, because of the enormous increase in the value of property along improved roads. The users of gasoline pay the tax and the owners of the property reap the benefit."

Mr. Earle stated his belief that 500 or 600 acres per mile of road in Michigan are increased in land value $25 an acre through improvement of the road. Strange talk this for a man whose job generally seems to be to get as much of the public's money to spend for road work as possible, the manner in which it is raised not being of first importance.

Hold on though. We haven't got this straight. Mr. Earle used to be a state highway commissioner, but isn't now. Mr. Frank E. Rodgers, is one of the present crop of state highway commissioners, however. He also spoke at Ann Arbor. He summed his ideas on taxation for road improvement up; "In other words we have rented the roads to the users for a sum which will care for their maintenance and also for proper expansion, which is just and right."

Funny, how the point of view changes, isn't it?—V. B. G.

Another Office Seeking Lair

ANOTHER liar and demagogue has broken loose. He wants to be governor of Virginia. His name is Harry F. Byrd and he is now a state senator and a member of the Virginia Farm Bureau Federation.

Senator Byrd would become governor partly on the strength of the passion that he can arouse in the citizens of Virginia against the oil industry. To inflame these Virginians he is telling the usual line of falsehoods that his predecessors for higher office have, meaning McMasters, La-Follette, Charlie Bryan and the rest of them.

It's too bad the industry's new Public Relations Committee is not sufficiently well organized so that it could send a man right down into Virginia and tell the people of Virginia and also Mr. Byrd just how much of a liar he is in his statements regarding the oil industry. And this Public Relations Committee should undertake to prove that he's a liar in plain English—not that he's a gentleman who is slightly mistaken regarding the facts, or who may have been mis-informed.

The time has come when every man making public statements, whether in public office or running for public office, must make certain that he is speaking with full knowledge of the facts. The time is past when he can alibi that he didn't have all the facts—that he had been mis-informed.

The oil industry and every industry should treat every man of that character as one who knowingly, deliberately and maliciously mis-states the facts. In other words, that he is a liar and that nobody knows that fact better than he does himself.

We are criticizing Senator Byrd on the statements credited to him in the newspapers, but undoubtedly those statements are correct for we have before us one of those proof-sheets of an alleged news story which political organizers send out in regard to their favorites. In other words, we think Mr. Byrd has sent out this particular alleged news story himself.

The story said that the senator demanded a government and state investigation of the price of gasoline—that he "denounced the increase in gasoline prices of nearly 7 cents the past few days as being a deliberate and unwarranted mulcting of the consumers." Herein the senator, if he has had any knowledge of the facts whatsoever, has lied knowingly, deliberately and with malice aforethought. The oil industry should tell him so and should tell his constituents so.

He goes on to recite what a great value to the public gasoline is—how much this raise will cost the public, but that's aside from the question. He winds up by saying "market conditions could not account for this increase of 40 per cent in the sale price at a time of the year when gasoline is in less demand than at any other time." Again Mr. Byrd should be nailed for a liar.

The senator let it be known that if he was made governor, as his press agent story says, "he would do everything in his power to protect the interest of the gasoline consumers." It seems that the senator was one of a group of citizens of Winchester, Va., who claimed to have been instrumental in reducing the retail price of gasoline there last year.

If every oil company, when they made these gasoline price advances in the last few weeks, had told the public their reasons for those advances, it would have been much harder for Senator Byrd to have gotten away with these lies in his effort to elect himself governor of Virginia.

Here's another liar that the oil industry should smash in the face.—W. C. P.

Cutting Down Overhead—

Ability of the independent jobber to deliver to his trade lubricating oils as received from his refinery source, without blending them, enables this jobber to operate his plant at a much lower cost, or to increase his gallonage without extra investment in additional storage, tanks, kettles, warehouse space, etc.

Deepwater lubes are straight run and 100% overhead distilled. They go direct to the jobber's trade as they are received from us in tank cars or drums.

Deepwater Oil Refineries

The Independent Jobber's Refiner HOUSTON-TEXAS

Here is a station that catches the motorist's eye. Note how m uch more attractive this good-looking but unpretentious station is made simply by the addition of a few flowers and shrubs—the row of fire-brush in front, hollyhocks and other flowers and bushes at the side. It is one of the Hawkeye prize winners and is located at Ida Grove, Ia. L. L. Goreham is agent

Improved Station Grounds Attract Trade

DO FLOWERS and shrubbery around the service station pay as an investment, in both time and money, in any tangible way?

Service station agents of the Hawkeye Oil Co., who were winners in a beautiful service station contest, were all of the opinion that beautifying their stations with floral decorations do help them to get more business at their stations.

First, the added attractiveness of their stations was a drawing card that appeal to women customers particularly, making many of them steady customers.

Second, many men are themselves interested in gardening. Some of them take great pride in their own gardens in their own yards. The fact the station agent was also a gardener and raising flowers gave them a hobby in common. The patron was interested in the flowers the station man was raising, asked about them, took an interest in their growth and felt more interest in the station than just a place to buy gasoline.

Third, tourists from other parts of the country take an interest in flowers at service stations along the route because they are often of different varieties than those raised in their own particular sections. The service station is a good place for them to observe flowers, and the Hawkeye attendants found they were asked a good many questions about what kind of flowers "grow best around here."

Flowers, shrubs and plants, however humble, will not only brighten up surroundings and hide ugly spots at the station, but also act as business getters, is what Oscar Bantz, agent at the Independence, Ia., station, believes. His station being listed among the first prize winners, here is what Mr. Bantz says:

"I find the condition of the station and surroundings count for at least 50 per cent.

"Our station is on the northeast corner of the block with two sides enclosed by brick buildings. Around the inside, have a row of shrubbery, bridal wreath and honeysuckles, then to the front of the shrubbery, I have a row of dahlias and hollyhocks, and on the inside a row of salvia. Out in front and inside the curbing, I have two large beds of zinnias. With the lawn kept in good condition and the flowers frequently watered, it gives a very pleasing effect.

"The rules of cleanliness must be observed on the inside of the station as well. The tourist trade has an opportunity to pass their opinion on a good many stations as they travel through the country, and I find that I am repaid for any extra time spent in improving the looks of the station and lawn, which, combined with prompt service, proves to be a business getter. Courtesy, of course, at all times is a great essential."

Another expression along this same line comes from another prize winner, Thomas O'Hern, agent at Paris, Ky., who says:

"I am fully convinced that shrubbery growing around a service station, aside from the beautiful appearance it makes, is a valuable asset from a business point of view. People who drive up to your service station, ask you the name of the different varieties of the flowers and comment on their beauty, in particular the ladies. My experience is that you gain many regular patrons in that way."

Mr. O'Hern uses summer cypress for a border, which turns to a reddish tint in the fall, and for the center of flower beds, such flowers as snow balls, forget-me-nots, and scarlet sage. He states that "you are more than repaid for your efforts as the flowers bloom and retain their beauty throughout the summer."

Another firm believer in the fact "that the service station beautiful will be the station of gallonage" is Frank L. Shimmin, agent at the Monmouth, Ill., station, also one of the first prize winners. He finds that many patrons comment on the floral decorations at his station, especially the women, and many customers observe them even though they do not make comments, because, Mr. Shimmin says, in the spring they ask him what kind of flower or plant he had in this or that spot and if he could advise them where to get the seed or root.

Abundant shrubbery around the edge of the Monmouth service station lot offers the necessary and effective background for the flowers in front, without which the effect of flowers would be almost completely lost. Forsythia, one

of the more common shrubs, but nevertheless pretty, is the one this agent finds most attractive and suitable, it being the first of his various shrubs to bloom in the spring, which is even before the trees leaf out, because it has "such a beautiful heavy deep-colored foliage all summer," he says. He receives more comments on this particular shrub than on any other. Bridal wreath, barberry and hydrangea are other bushes employed along the fence as the background.

Old-fashioned flowers seem to be the most popular, finding preference at many stations, at least judging from these prize winning stations, rather than the more elaborate and "sensational" variety. Most of them are hardy, easy to cultivate and take care of, always effective when arranged with some care and study, and attractive in color and blossom. Mr. Shimmin prefers petunias in the oval-shaped flower bed in the foreground of his station, because he states they have a solid mat of blossoms the entire season. Flowers in the circular bed he changes each year and such plants as verbenas, burning bush, poppies and flax have each served their day. Cannas, hollyhocks, Japanese beans, and foliage plants are used in a section around the fence.

A variety of inexpensive but attractive flowers, demanding about the least amount of care on the part of the station attendant, is used at the Guthrie Center, Ia., station, of which Ed. McLuen is agent, also a prize winner. Among the plants this agent cultivated last year, most of which are of the old-fashioned variety, are: canna, zinnia, petunias, chrysanthemums, four o'clocks, phlox, cosmos, alyssum, castor bean, touch-me-nots, marigold, calliopsis, snow balls, geraniums, asters, dahlias and gladioli. Cypress vine and wild cucumber are also used, which climb up both sides of the station walls.

A pleasing and colorful effect is obtained by C. E. Omer, agent at Tabor, Ia., another first prize winner, who maintains quite an imposing flower garden in the extreme foreground of his station, edging the circular curb-line. His color scheme is red and yellow, and flowers include red and yellow dwarf cannas, dahlias, gladioli, red dwarf castor beans, and four o'clocks around the curb. Mr. Omer says that few motorists fail to make some remark about the surroundings at his station.

Chicago fire-bush, kept in neat trim to a certain height, serving as a border on gracefully curving drive-ways, with rows of canna, double marigold, double zinnia, variegated and honey comb dahlia, petunia, salvia, geranium and other varieties, helped the Sigourney, Ia., station of which Will Wickenkamp is agent, to list itself as a first prize winner.

Another station that attracts additional gasoline business with its profusion of flowers and plants is that located at Wyoming, Ia., of which H. J. Siler is agent. Mr. Siler says that many people ask for plants and bulbs for planting and many ask for bouquets for various functions they are attending, which is in itself a worth-while bit of advertising. On the large lattice or wall-like structure at the side which stands higher than the station and overshadows the station itself, Mr. Siler employs vines and taller flowers effectively, among them being hollyhocks, dahlias, coxcomb, cannas, marigolds, gladioli, asters, salvia, tulips, various colors of geraniums, sweet alyssum, poppies, four o'clocks, pansies and even roses.

How much difference a few flowers and shrubs can make at a station, is the comment made by customers of Howard Simpson, agent at Waterloo, Ia. This station keeps the name "Hawkeye" in the public eye by spelling it out in flowers, using red colas for a border and green colas for the name. This is trimmed each week, making a block effect of the letters. Mr. Simpson states that he receives many inquiries on this effect and how it is kept in good order. Two flower-beds at the rear of the office have a border of colas with yellow and red cannas in the center.

One station that many tourists as well as "home folks" patronize is the one of which C. W. Cheyne is agent. It is at Webster City, Ia. Two large pillars on either side of the station, guarding the entrance, are covered with five-leaf ivy. A strip of ground in front of the station transforms this site into a garden spot, with its beds of evergreens, foliage plants and bright red geraniums in the center.

Ladies again! Harry L. Ireland, agent at Pendleton, Ind., says that many admiring remarks are made by motorists in general, "and ladies in particular," on the appearance of his station, the ladies being usually presented with a bouquet. A diamond-shaped plot of ground in the foreground consists of barberry and wegalia bushes, and flowers used around the station include cosmos, zinnias and dahlias.

The Hawkeye has made this contest an annual one in order to stimulate interest on the part of each agent to make his station as pleasing and attractive as possible, with the result that this company has some of the very best-looking and florally beautiful stations in the country, a typical one being reproduced in the accompanying picture.

Other agents who were first prize winners included: Fred Schwinger, Ackley; S. W. Laythe, Cambridge; W. F. Ward, Casey; George Powers, Cresco; G. E. Climie, Centerville; S. R. Stroud, Hedrick; Thornburg & Bevard, Nashua; and J. B. Aiken, Afton, all of Iowa; A. J. Alexander, Mt. Vernon, Ind.; Bert Hungerford, Rushville, and Charles Combs, So. Whitley, both of Indiana.

Each of the first prize winners were presented with a set of half dozen silver knives and forks, engraved with "Parco," trade name of the gasoline marketed by the Hawkeye. Second prizes were awarded to 23 stations and 32 received honorary mention. A silver gravy ladle, also engraved "Parco" was given to each second prize winner.

New Oil Station Construction

Bottineau, N. D.—Bottineau Oil Co., newly-organized, will erect filling station. Officers are: Jacob Ohmart, president; H. Ohmart, vice president; Raymond R. Smith, secretary and treasurer.

* * *

Pittsburgh, Pa.—Taylor Oil & Gasoline Co., distributor of Pennzoil products in Pittsburgh, erecting bulk and service station here.

* * *

Kansas City, Mo.—American Oil & Tank Co. bought property at Mt. Washington for office, warehouse and service station.

* * *

Stuttgart, Ark.—Gibson Oil Co., operating about 15 filling stations in Little Rock, plans to build one or more stations here.

* * *

Cleburne, Tex.—H. L. Chambless building service station, to be owned and operated by S. B. Capps when finished.

* * *

Wheeling, W. Va.—Pure Oil Co., with headquarters at Columbus, O., is seeking six locations for service stations.

* * *

Albert Lea, Minn.—Freeborn County Co-Operative Oil Co., new company, plans to buy, lease or build filling stations.

* * *

Laurens, Ia.—Standard Oil Co. of Indiana to build filling station, to replace temporary one it has been using.

* * *

Gays Mills, Wis.—Perfect Oil Co. purchased property for service station to be erected in early spring.

* * *

De Pere, Wis.—Otto Koenig, formerly with Winona Oil Co., purchased corner lot for filling station.

* * *

Bell Buckle, Tenn.—Standard Oil Co. of Louisiana building distributing station.

* * *

McMinnville, Ore.—Yamhill Gas & Oil Co. to erect warehouse and garage.

* * *

Oklahoma City, Okla.—W. G. Sautbein seeking permit for filling station.

* * *

Leachville, Ark.—Leachville Oil Co. bought site for filling station.

* * *

Tarpon Springs, Fla.—Edgar Bullock to build filling station.

* * *

Jordan, Minn.—Mickus Oil Co. to build filling station.

* * *

Urbana, Ill.—J. S. Love seeks permit for filling station.

Inexperienced Men Interpret and Enforce Oklahoma's Conservation Rules

By A. F. Hinton
N. P. N. STAFF WRITER

TULSA, March 6

IN the two preceding articles in this series, a history of the development of oil-industry regulations by the Oklahoma Corporation Commission was given, followed by a description of existing rules affecting drilling, protection of sands, marketing the product, etc. This article, which will be the final one on Oklahoma regulations, deals with the field personnel of the commission, its contacts with oil men, and a general discussion of the state's administration of its conservation laws.

Administration of the oil and gas regulations of the state is in the hands of the chief oil and gas conservation officer, who heads the oil and gas division of the Corporation Commission. This being a bureau of the commission, the chief conservation officer of course is directly under the supervision of the chairman of the commission, but most matters pertaining to oil and gas are left entirely to him for decision.

This position would seem to require a man of high technical ability, and one well versed in all manner of field problems. He should be thoroughly conversant with drilling methods, should be familiar with the various known oil and gas-bearing strata, and should be able, if necessary, to take charge of a well and put it on production under the best conservation principles. In short, he should have at least the usual qualifications of a field superintendent for a producing company. Actually, however, the present incumbent, W. C. Geers, has had no practical experience in the production of oil. For several years prior to taking up his present duties he was secretary to the Corporation Commission, and before that was editor of a newspaper at Tishomingo, Okla.

Working under Mr. Geer's orders, there are at present 11 district conservation officers, who live at points convenient to oil fields, and each of whom has a certain district to cover. These men are supposed to keep an eye on all drilling wells, to see that all the regutions are observed, and especially to preside at the obsequies when it becomes necessary to plug a well. They are the points of direct contact with the oil men, and, even more than the chief conservation officer, should be men who have had many years' experience in actual drilling. It is their job to be able to go on a derrick floor and find out for themselves if the regulations are being observed, and to consult and advise with the operators as to the best methods of solving the many problems that arise in "making hole."

The fact of the matter is that very little attention is paid to the oil field experience of an applicant for one of these positions. They are not civil service employes, and are required to pass no examinations as to their fitness for the work. The answer, of course, is politics. These men are appointed by the commissioners either as a reward for services rendered, or at the behest of some other state official whose wishes it would not be policy to ignore.

Even if the experience requirements were more rigid and it were necessary for an applicant to qualify as a driller before getting the appointment, the salary paid is not sufficient to attract men who could meet the requirements. These men receive $225 a month, with expenses while in the field. If they possessed the expert knowledge and had had the experience they should have had to render them strictly eligible for such a position, they could command a considerably higher salary than that in the oil industry. In contrast to this condition, men occupying similar positions in California are said to receive salaries of $5,000 a year.

District conservation officers are posted at the following places: Lawton, Holdenville (2), Chelsea, Tulsa, Okmulgee, Muskogee, Tonkawa, Ardmore, Blackwell and Comanche. All of these points are centers either of more or less drilling activitiy, or of settled production, but none of them is well located with reference to strictly wildcat areas. Vast stretches of the state westward from present producing areas are being tested, and will be tested more intensively during the coming summer, and it is the wildcat which should be of the greatest interest to the conservation officers, because of the fact that such a well, drilling in unfamiliar territory, may strike oil or gas sands at almost any point, and proper steps should be taken to protect such strata. It is more likely than not, however, that most of these wells will never be visited by a conservation officer at all, because the officers will have all they can do to take care of their regular districts.

This is the third and concluding article in Mr. Hinton's series on the oil and gas conservation program of the state of Oklahoma. The first was a history of the state's policy, the second told of the rules in effect and this article tells how they are enforced.

With so much talk in the air about conservation, the present series, telling how the state which has more rules than any other commonwealth, has fared, has occasioned much comment. It has raised the question of how much state regulation does the industry want? Mr. Hinton has not tried to define the extent, nor to say whether any state effort is good or bad, but it is apparent from the reading of what Oklahoma has done that regulation, handled by men who are unfamiliar with the thing they are regulating, is a habit-forming drug; its use creates the desire for larger and larger quantities.—Editor.

Producers Reasonable-Minded

From the standpoint of the producer, or the production superintendent, the regulations themselves are not particularly objectionable, as long as they are enforced impartially and with reason. Drilling a well brings about so many unusual situations, and presents so many different problems, that it is difficult to lay down a hard and fast set of rules to be followed in each one. The reputable producers, or the superintendent for a reputable company, believes in conservation, even though he does not use that exact word in describing his efforts to protect sands and to produce oil as economically as possible. If the Corporation Commission had for its field supervisors men who were acknowledged experts, and if they had enough of them actually to oversee drilling, it is conceivable that many operators would be glad to avail themselves of the opportunity of calling such men into consultation when difficulties arose in drilling.

With officers appointed from "civil life," so to speak, through political influence, and with experience in the oil business a negligible factor in the appointment, the average operator desires to have as little as possible to do with the commission's field men. He does not acknowledge their ability, and therefore mistrusts their directions as to how work ought to be handled. He hears other operators tell of their experiences with the conservation officers, and hopes only that they will let him alone to finish his well to the best of his ability and

according to the dictates of his experience and judgment.

The contact between operators and conservation officers in the field is such that there is always the possibility of the arbitrary enforcement of some regulation on one well while other wells in the vicinity are not even visited by the officers, thus adding to the friction and bad feeling which sometimes exists. The officers are human beings, and if an operator ruffles their feelings, or hurts their dignity in any way, it is not surprising if they try to "get back" at him by making his life miserable through strict enforcement and constant attendance.

Aside from acts of individual field representatives, the Corporation Commission's efforts to administer the state's conservation laws have generally been aimed principally at the prevention of waste, and it must be said in their favor that they have endeavored to treat all operators alike in the enforcement of these laws. Their orders have been directed at all operators, and there has been no instance of their knowingly favoring one operator over another in issuing their general orders covering activities in certain fields. However, injustices sometimes creep in in administration of the rules.

An Arbitrairy Ruling

An instance of how injustice may be done an operator by the issuance of orders before sufficient investigation has been made came to light within the past few weeks. In this case, the operator was called on the phone by the chief conservation officer and told that he must cease swabbing a certain well, as complaints had been lodged against him. The operator asked under what section of the regulations he could be ordered to stop swabbing, as swabbing is not mentioned specifically anywhere in the book of rules.

The conservation chief stated that "they had rules" for it, and that if the operator desired redress he could get a hearing before the commission. After some persuasion, he finally agreed to meet the operator at the well and talk it over with him, if in the meantime swabbing was discontinued. When this meeting took place, it developed that a neighboring operator had made the complaint, alleging that the operator who was doing the swabbing was getting more oil than he was. Further investigation disclosed that the complainant had drilled his offset well into water, and was therefore unable to swab it, and didn't think the neighbor ought to be allowed to swab, either.

After looking the ground over, the officer stated that he believed there was no just ground for complaint, and that he felt sure he could get the order rescinded as soon as he returned to Oklahoma City. It was several days, however, before the restriction was lifted. In this case, it is altogether probable that the operator had a perfect right to swab his well if he so desired, as long as he was causing no injury to the sand under his own or the neighbor's leases. When forced to stop swabbing he had not had time to make preparations for putting the well on the pump, so that it was off altogether for several days, resulting in a loss of something like 2000 barrels during that time.

In this case, it was certainly unjust to issue such an order before any investigation had been made, as it seems reasonable to believe that it would not have been issued at all if an investigation had been made. Certainly the fact that one operator is able to get more oil than his neighbor is not just cause for complaint, unless damage is being done. It is probable that the authority for ordering a cessation of swabbing is found in that part of the regulations that prohibits the use of vacuum on an oil sand without express permission from the commission. Swabbing is not mentioned as such, but it is supposed to create a partial vacuum with each upward trip of the swab.

In the Cromwell field development, the commission attempted to single out a certain company and to order it to shut in wells which were blowing off gas while drilling into the oil sand. This company showed fight, however, and said that as long as other wells in the vicinity were also blowing off gas, it would resist to the utmost any effort to force it to shut its wells in. This show of combativeness was effective, as the commission withdrew its order and let the gas continue to blow unrestricted. The counsel for that company told the writer that he would have taken the battle right on up to the highest federal courts if necessary, and is confident he would have won.

What the Lawyers Believe

This brings up the lawyers' attitude toward the commission's rules and toward the entire Oklahoma conservation law. Oil company attorneys believe that, if a fight were made against it, certain phases of the law would be declared in violation of the Federal constitution. Only those sections designed to prevent actual physical waste, they point out, would stand up under this test. Those pertaining to economic waste, the "common purchaser" law, and others similar to it, they believe, are in violation of the basic law of the land.

To the legal mind, laws prohibiting or restricting the drilling or operation of oil wells tend to violate the Fourteenth amendment to the Federal constitution, which prohibits any state from depriving a citizen of his liberty or property without due process of law. Such laws involve also the contract clause of the constitution. The citizen of course, is amenable to the police powers of the state, and to that extent is not immune from state interference with his liberty and property.

Oil and gas however, are peculiar in that they are not considered individual property in the sense that more material and less vagrant real property is, at least in certain states. In Oklahoma, and it is said, in Indiana, Louisiana, and possibily Kentucky, the doctrine prevails that fee owners whose lands are underlaid by a deposit of oil and gas, have some sort of a common ownership in the two substances. Thus all fee owners have rights in all oil produced continuguous to their holdings and are entitled to protection, which is provided through laws designed to prevent waste. This doctrine, of course, applies only to oil in place. Each fee owner has the exclusive right to drill on his own property and to appropriate the oil and gas as his property when he has "reduced them to possession."

Basis of Laws

In those states, therefore, the constitutionality of laws designed to prevent waste is upheld on two grounds, first, because they serve to protect the interests of a co-owner in a common deposit from the wasteful practices of his neighbor, and, second, because the public has an interest in preventing the waste of a natural resource, especially as it is of such a nature that it cannot be replaced. It is on this basis that the conservation laws of Oklahoma are framed.

Lawyers point out, however, that, assuming that an operator is drilling or producing oil without committing actual physical waste, there is no power inherent in the state to restrict drilling and operation of oil wells without being in contravention of the Federal Constitution, except in the states adhering to the common ownership doctrine. Those states possibly would be upheld in legislation designed to so restrict drilling or production so that each common owner might obtain no more than his reasonable share of the substances held in common ownership.

Oklahoma has probably gone farther than any other state in providing laws for the regulation of the business of drilling for and producing oil and gas and under its state constitution has almost complete sway over the industry insofar as it can hang any law onto the fetish of preventing waste. Through the Corporation Commission, it is getting away with it, and will continue to do so until some belligerent oil company decides to ask the United States Supreme Court how about it. When that is done, it is probable that another chapter will have to be added to this series.

WASHINGTON,—A. F. Melcher, physical geologist of the U. S. Geological Survey, has resigned to accept a position with the Marland Oil Co. of Oklahoma at Ponca City, where he will specialize in a study of the porosity of oil sands. He recently published details of his latest determinations along these lines in the Bulletin of American Association of Petroleum Geologists, under the title "Texture of Oil Sands with Relation to the Production of Oil."

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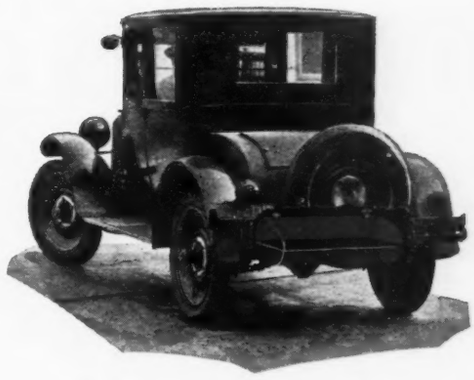

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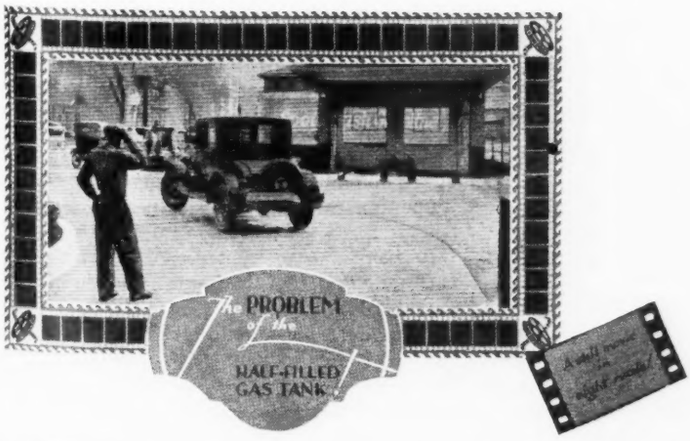

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General Technical Discussion At Geologists' Meeting

By H. B. Goodrich
Petroleum Engineer

TULSA, March 7

THE Tulsa Geological Society at its meeting in the Municipal Building, February 21, inaugurated a plan and policy of program for 1925. The first meeting of this year was concerned mainly with a highly instructive paper on astronomy, in addition to one on the geologic map of Oklahoma. The one two weeks ago brought up the very technologic discussion of mining of oil. At the meeting last Saturday scientific, purely geologic discussion of a general problem that interests petroleum geologists was brought out. Each one present might apply the theories and conclusions to any particular proposition in which he is interested. It seems that this line of procedure is best fitted for a body such as this society; namely a discussion of broad general findings brought out by the best minds of the profession, a comparison of ideas of those present which will lead to the proper application of the points discussed.

President W. B. Wilson, Gypsy Oil Co., before the papers were presented read a letter from Dr. Thom thanking the local geologist for their co-operation in the matter of geologic subsurface map of Oklahoma. This important work, undertaken by the U. S. Geological Survey and Oklahoma, was fully described at a previous meeting.

Sidney Powers described a specimen of algae and potash collected from salt in a salt dome in Texas at a depth of perhaps 4900 feet, which Mr. Powers had seen in Washington. This first discovery of organic remains was interesting to him as a student of salt domes and apparently disproves some of the earlier theories regarding the origin of the domes.

It was announced that H. M. Scott had been appointed to represent the Tulsa Geological Society in committee of the A. A. P. G. to arrange all matters connected with the meeting at Wichita, in March.

Announcement was made that while Dr. C. N. Gould had applied for $60,000 appropriation to carry on Geological Survey work in Oklahoma this amount had been progressively cut down and that finally only $20,000 was allotted. The work had been proposed to include topographic mapping as recently described to the Society by Dave Logan, of Okmulgee, and the publication of many Survey reports that have been held up some years.

The meeting endorsed the idea that the work certainly was important enough to merit much larger appropriation and that to carry out the outlined activity the amount of $20,000 was inadequate. It was voted that the matter be turned over to a committee of which Harry F. Wright is chairman with the object of getting into resolution form for presentation to the proper authorities, the sentiment of the Society.

Introducing L. L. Foley, who presented for discussion the subject, "The Origin of Faulting in Osage and Creek Counties," Mr. Wilson stated that in the Rocky Mountain region it is the exception to find a structure that is not faulted but here we have many not faulted. And yet while not so emphatic faulting does exist in Oklahoma and should be understood.

Mr. Foley illustrated his subject by diagrams and maps drawn to such a scale that they could be distinctly interpreted by the audience at a distance. While this may seem unimportant it is a rather exceptional advantage and one which should be followed at all meetings.

The problem involved was suggested by K. C. Heald to test by laboratory experiments the theories of A. E. Fath. As shown on the Oklahoma map there are in Osage and Creek Counties very many short enechelon faults whose strike is N 20 deg W to N 45 deg W. These grouped in lines extending in N 25 deg E direction. Further Fath had pointed out that many of the foldings are elongated parallel to this last line. The now recognized buried granite ridge extending from Nebraska through part of Kansas has the same general direction while folding as late as Permian is over the ridge. This suggested that the faults and the granite ridge have a common origin. Mr. Foley followed out the suggestion not only by exhaustive field work but by experiments in the laboratory and elaborated Mr. Fath's original ideas.

Descriptive drawings were shown of the experiments which were made following similar methods employed by Bailey Willis some years ago on problems of folding. Mr. Foley's apparatus was composed of lower layers of wood, taken to represent the granites and other basal formations. On top of this layers of wax were placed, some being hardened by mixture of crude oil, which represent the sedimentary formation of Pennsylvania or later that occur in Oklahoma. The strata were weighted down and compression was applied slowly to this block longitudinally at the rate of 1½ inches in 18 hours. The result was a development of fractures in the lower wax beds which were not shown in the upper layers. These are like the Osage and Creek county faults while the upper beds are folded. Domes are formed by one stress, simple at the surface and steeper in the lower beds. The structures narrow with the depth. This all agrees in the laboratory with actual observations in the field and the conclusion is that with the Ozark uplift at the southeast and the granite ridge at the west, opposed thrusts and rotational stress were developed.

Reference was made to experiments by Dr. Warren Meade, and Dr. C. K. Leith of the University of Wisconsin and diagrams were shown of the strained elipsoid twisted by rotational stress causing lines of weakness and movements such as are found in the Mid-Continent field between the Ozarks and the granite ridge. The development of shear lines were noted in north of west direction and the tendency to produce the well-known northwesterly trend of structural noses along shear lines. Also, at nearly right angles, the development of thrusts faults at about right angles. Rotational stress can account for every structural feature. The northeast to southwest folds are due to compression longitudinally; the enechelon faults to tensional and the noses are results of shear lines all in the basement rocks. Vertical motion is not necessary to produce the folds.

The discussion was most animated. Mr. Gardner asked whether any regularity of the side of throw had been noted, which side up or down thrown respectively. It was understood that no such regularity had been determined. In two cases the fault plane dipped to the SW about 45 degrees. To this last Dr. Bloesch raised the point that a fault plane is a line of weakness whose shade varies locally. Answering question by Mr. Munn the speaker said there may have been vertical movements in the hard rocks which are difficult to find proof of Richard Hughes brought up several apparent discrepancies of observations on surface and subsurface folding and faulting, with the generalized conclusions of Mr. Fath.

It appears that while laboratory experiments by reason of their simplicity may not be able to duplicate the very many intricately complicated conditions found in nature, Mr. Foley has studied thoroughly both in the field and in the workshop. One of the perhaps minor points incidentally brought out was the possibility of tracing structure by noting the obtuse angles formed by joint planes in such formations as limestone. It is understood his paper will be presented in full at the American Association meeting at Wichita.

COIN, IA.—Marland Refining Co. has entered Coin, having bought the bulk and service station of the Primary Oil Co., formerly managed by J. G. Anderson, according to Charles E. Horel.

BARNESVILLE, O.—Kentucky Oil Co. is building new stations here.

How A Refinery was Built to Operate on Poor Crude and Make Money

By Paul Truesdell
N. P. N. STAFF WRITER

ARTICLE 1.—INTRODUCTION

BEAUMONT, TEX., March 7

ON a 600-acre tract eight miles from here, that two years ago was a dismal swamp, the playground of thousands of mallard ducks that make this country a winter resort, today there stands a refinery the like of which is not to be found anywhere.

There are plenty of bigger refineries than this and there may be better ones for that matter but it is a safe bet that there is not another one like it anywhere in the world. The refinery is the Smith's Bluff plant of the Pure Oil Co., which has its headquarters at Columbus, O.

The man who named this particular location Smith's Bluff, like the man who christened near-beer, had poor judgment. There isn't much of a bluff here, but the river bank at this point is considerably higher than the surrounding swamps.

The reason that the refinery is different from others is that the men who designed and built it did not let themselves be bound overmuch by tradition and precedent. Not that they didn't take full advantage of the knowledge and experience that had been built up in the art, but when their common sense and experience and experimental work convinced them that there was a better way to do a certain thing than the way it had always been done, they weren't afraid to throw away the book and go ahead.

Betting on Their Figures

They were willing to bet on their own brains and their own figures. They did bet on them and they won, for the refinery is successful. It is purely a skimming and cracking refinery. The part designed to skim the crude is capable of handling 15,000 barrels a day with equipment representing an investment of not more than half, probably, that of any other plant of equal capacity.

The novelty of the plant lies chiefly in the fact that all the skimming is done in three tube stills with fractionating equipment designed by the company's own men. The cracking is done by 26 Cross units.

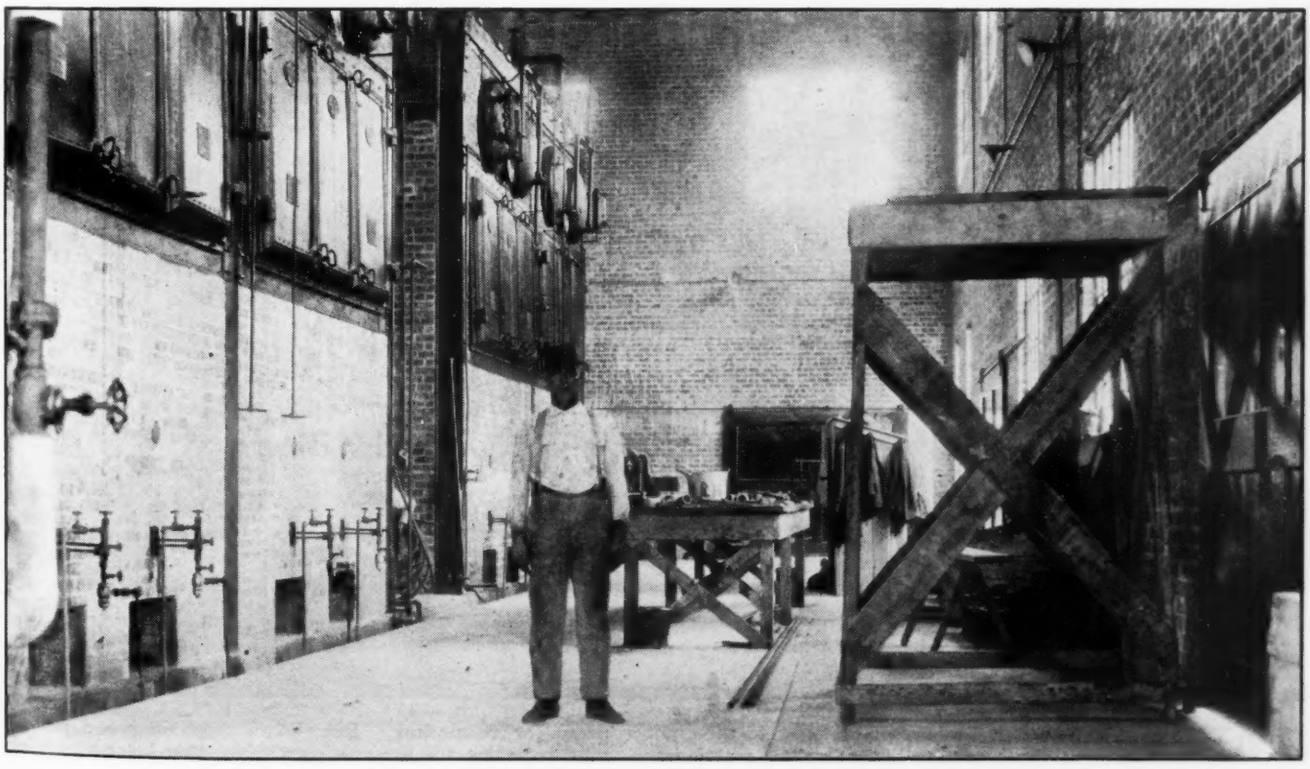
The Pure Oil men believed that the day of the shell still for skimming crude was over and the day of the tube still arrived, and they have proved it to their satisfaction at this plant.

It was just about two years ago that the decision was reached to build a refinery where it would be handy to the then new production from the Humphreys-Pure Oil holdings at Mexia for crude supply, and where also shipping of refined products could be handled to advantage. The present site was chosen because a pipe line could handily bring the crude from the Mexia field, 236 miles away, and on the other hand, the Neches River, which bounds one end of the refinery site, with its 30 feet of water, furnished handy and cheap shipping facilities to the company's marketing territory in the east, centering at its Marcus Hook terminal.

The company had tank steamers and barges to transport the refined products and it has acquired more. It was a good site and the fact that it was always covered with water after rains was merely a minor matter, because of the ease with which it could be drained.

Just recently the Pure Oil Co., in association with the Sherill Oil Co., jobbers of Florida, has obtained from The Texas Co. a seaboard terminal at Pensacola, to which products are being delivered by barge from the Smith's Bluff refinery, to be distributed through the stations of the Sherill Oil Co. over Florida, Alabama, Georgia and other southern states.

The terminal was built in 1919 and consists of two 64,000-barrel tanks, three 7800-barrel tanks, a dock, a pump house, a boiler plant and dwellings for employ-



The battery of four 500 horse-power boilers that furnish steam at the Smith's Bluff plant. Lientz furnaces are usedas the picture shows.

ees. Some remodeling is now being done to make it more suitable for the Pure Oil Co.'s purpose.

It is about 700 miles from the refinery at Smith's Bluff to the terminal at Pensacola and a tug and a barge make the round trip in a week.

It was early in 1923, that C. B. Watson, then assistant to the president of the company and now vice president, gave the word to Dan E. Sullivan, chief engineer to go ahead and design and build a refinery at Smith's Bluff capable of skimming 15,000 barrels a day and of cracking 18,000 barrels more.

Mr. Watson, himself a refinery engineer in addition to his other attainments, laid down the general ideas which were to be embodied in the plant and the working out of those ideas and the vast host of details connected with it was left largely up to Mr. Sullivan.

Plans Ready in Three Months

With three or four draftsmen, the chief enginer set to work to lay out a refinery on paper, figure the material needed, draw specifications for it and buy it. Day and night he drove the work ahead and within three months it was finished.

Then the griefs of actual construction work presented themselves. From the main highroad leading to Beaumont and the main line of the Kansas City Southern railroad, which bound the refinery location at its other end, to the location for the farthest units of the plant, was about a mile and a half. This distance being across a swamp, getting in the material for construction presented the first problem. About the first thing that was bought was 800 carloads of oyster shells, the best filling material available in this part of the country, and a fill was made upon which to lay a spur track from the railroad. The construction of of a wagon road was begun at the same time.

When the track was laid, the company bought a pony locomotive to handle the cars of filling material and generally speed the movement of cars into and out of the plant yard. Things moved rapidly. The first refinery units to be put in were the three tube stills. They were of the Foster type and were brought on the stipulation that each must handle 5000 barrels of crude a day, vaporizing 95 per cent of it. Use of tube still equipment was entirely new on the scale it was put in here, and the fractionating equipment was entirely untried except for extensive and careful laboratory experiments.

While the men responsible for the building and operation of the refinery were willing to bet on the rightness of their theories, they still wanted to copper their bets for the benefit of the company so they put in a battery of eight 1000-barrels shell stills of the conventional type.

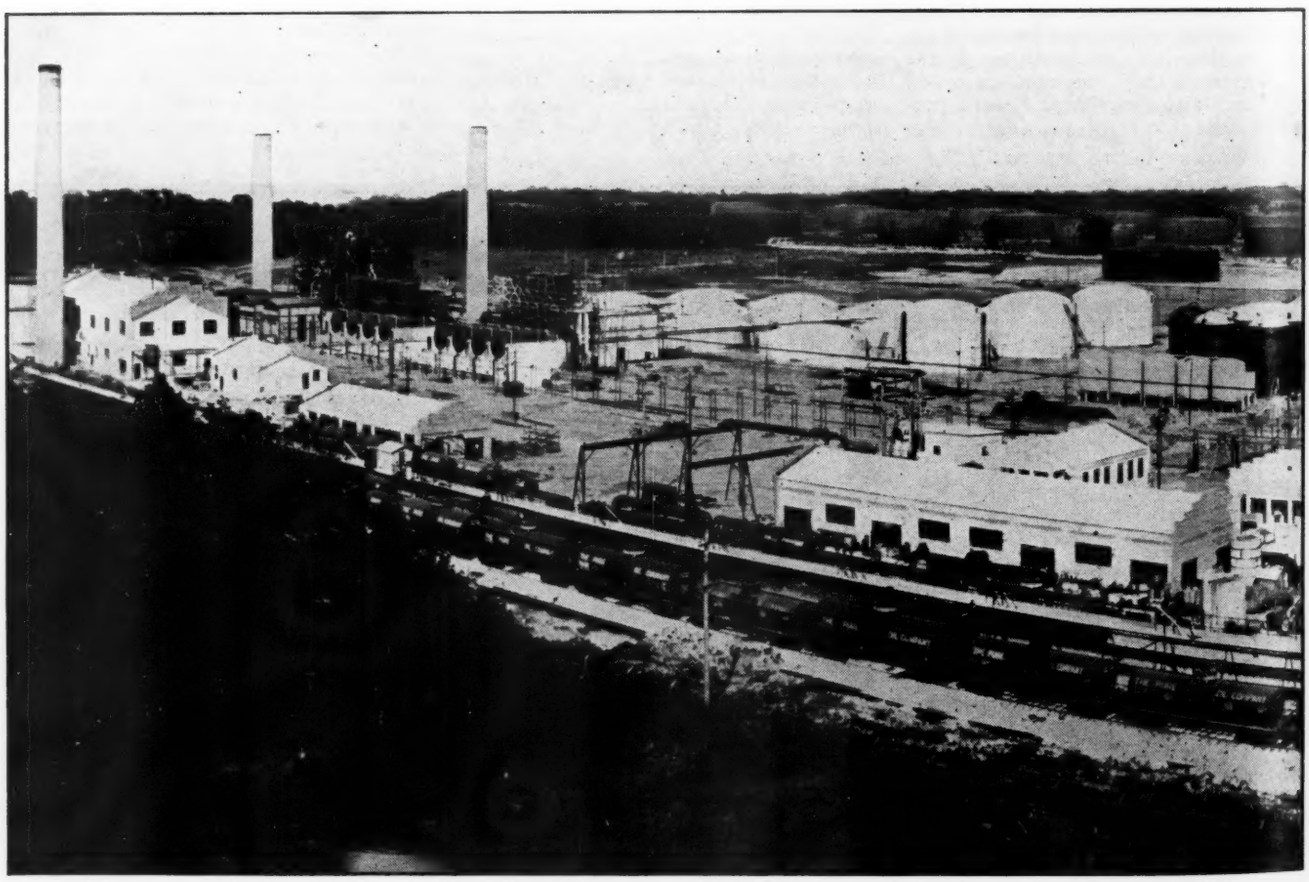
The Tube Stills Worked

They wanted to be prepared to start running crude right away and there was a possibility that the tube still equipment might not work satisfactorily at once. But it did work from the start and the shell stills have never been used for anything else than to re-run benzine and kerosene.

In nine months from the time construction work started, the refinery was finished, which the Pure Oil men believe establishes a record in construction, even when the added labor of building roads and filling in swamps is disregarded.

To an outsider it looks as if the successful building and operation of this refinery has not been at all a one-man proposition. Shortly after the Smith's

The Skimming Part of the Smith's Bluff Refinery



AT the extreme left is the power plant. Just to the right of that are the three tube stills with their fractionating equipment and stack, which skim 15,000 barrels of crude a day. In a line with the tube stills and toward the center of the picture are the eight shell stills which are used entirely for re-running. Behind the skimming and re-running batteries are the rundown tanks that belong to them and to the right of those, the five 1000-barrel agitators used in connection with the continuous treating system. In the foreground at the right in the picture on

Bluff plant was completed, the company organized what it calls the refinery control committee. This is composed of Mr. Watson and five men, each a specialist in some phase of refinery operation. Mr. Watson is chairman and the other members are: D. E. Sullivan, construction engineer; C. L. Smith, distillation engineer; J. M. Augustus, fuel engineer; R. C. Osterstrom, chief chemist and R. H. Carr, in charge of mechanical equipment. These men work together, each in his own field, to keep all the nine refineries of the company operating at a high pitch of efficiency.

Much of the credit for the success of the Smith's Bluff plant, according to members of the refinery control committee, belongs to R. L. Vernor, superintendent and J. H. Hasler, assistant superintendent. These men faced the hard problem of breaking in and training green men to handle the new tube still equipment and the still more intricate Cross cracking units. They did this in a very short space of time, too.

As the refinery stands today it is composed of a steam power plant, the three tube stills with their fractionating equipment, the eight shell re-run stills, the 26 Cross units, a continuous treating system hooked up to five 1000-barrel agitators, central oil pump house, water pump house, gasoline reclaiming plant, dock and unloading equipment, Mantius acid-recovery plant, warehouse, office building and laboratory.

Although comparatively little of the refined products are shipped by rail, shipment by water being so much cheaper, the refinery has a loading rack at which 50 cars can be loaded at a time.

The plant being the terminus of the Mexia pipe line, there is a tank farm consisting of 44 55,000-barrel tanks and earthen storage holding 100,000 barrels more. Besides the crude tanks there are also 10 55's for refined products and 14 5000-barrel tanks, 12 of which are the rundown tanks.

A description of the plant and its operations will be attempted in five articles. The steam plant is described in the following pages and the other features under the headings, Distillation, Cracking, Treating, and Special Mechanical Equipment will be covered in later articles.

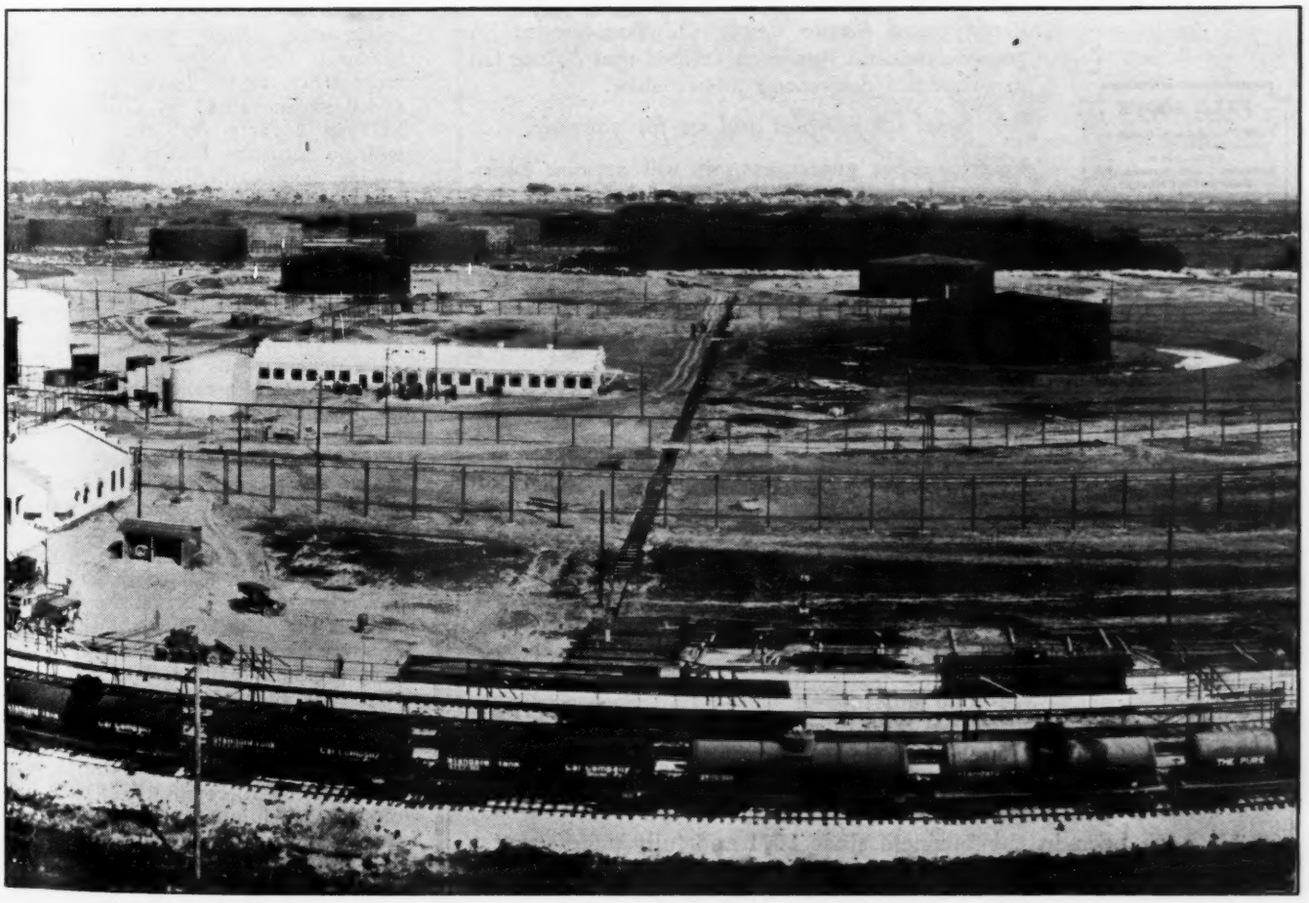
There are many refineries of a crude capacity no larger than this one that have steam plants scattered, two or three of them or maybe more, at different points in the plant, to supply steam for different uses. These are mostly plants that were built a long time ago before the economy of high pressure, superheated steam as against saturated, low pressure steam was as well understood as it is now.

The reason in these old refineries for putting power plants at various places was doubtless the belief that it was cheaper to build steam plants near each of the various departments that used the steam, rather than stand the loss that resulted from long distance transmission of the steam. Most of the older refineries have low pressure wet steam and no superheat.

In the Smith's Bluff refinery there is one central steam plant. It is a high pressure installation and the steam is superheated so that it can be carried a long distance without substantial loss. The boiler plant is housed in a building that conforms to the style of the other plant buildings, being of steel, brick and concrete construction with floor of concrete, steel sash with wire glass windows and J-M Transite roof.

The boiler installation consists of four water tube boilers of 500 horsepower each but it is seldom that more than two

Treating Plant, Pump House and Loading Rack



page 76 is the warehouse and behind the warehouse at the extreme right is the front of the office building. Behind the warehouse and to the left of the office building is the laboratory. The buildings between the warehouse and the power plant are the machine shop and the ice plant. Standing out in the middle distance by itself in this picture is the central pump house and part of the big tank farm can be seen in the background.

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or three of the boilers are in use. This in spite of the fact that 26 steam pumps have to deliver cracking stock to the Cross units against a 650 to 700-pound pressure. Most of the time the plant is operating on 1600 horsepower or less.

The boilers are equipped with Lientz furnaces but while there is considerable fuel saving from preheating the air that goes into the firebox, as described in an article published in the Feb. 4 issue of National Petroleum News, it has been the experience at this plant, the engineers say, that the upkeep cost of the Lientz furnace is high.

The steam in this plant is under 150 pounds pressure and each boiler is equipped with a radiant heat superheater. These superheaters are placed at the back and bottom of the boilers so that they are easy to get at. They derive their heat by reflection from the furnaces, radiant heat that otherwise would be lost. They add about 100 degrees F. of superheat to the steam.

Two Worthington feed water heaters are a part of the boiler equipment and they are heated by the exhaust steam that is returned from its journey around the plant. A more unusual device than the heaters for preheating the feed water is in use in this plant. It consists of drawing the boiler feed water from the condenser boxes.

This water reached the feed water heaters at about 110 F and is heated to about 140 F before going to the boilers. Not all the available exhaust steam is being used. Right now another big header is being connected up to bring more steam to the heaters. With this added steam turned in, Chief Engineer Sullivan expects that the feed water will go into the boilers at about the boiling temperature, 212 F. This will effect an important fuel saving as compared with the preheating system now in use.

Pure Oil Steam Meter

An ingenious steam meter is in use at this plant, and many of its features were developed by Pure Oil engineers.

It consists of a calibrated orifice plate set into the main steam line between two flanged heads. There is a two-and-a half-inch orifice in the plate through which the steam must pass. A small tube connected to a pressure gage on the instrument board, is set into the steam line just ahead of the plate and another is set in just beyond the plate.

The pressure of the steam before it reaches the plate is thus shown and the pressure after it passes through the hole. The pressure at the latter point, of course, is affected by the frictional resistance of passing through the small hole. The differential between the pressure before the plate and the pressure after passing it, computed in cubic feet of steam, then into pounds of steam and then into pounds per horsepower hour, indicates the horsepower being developed by the boilers.

A similar meter is set into the line at every point where steam is taken off for the uses of various units and departments and these meters furnish a record that makes it possible accurately

to charge to each department and each unit the exact amount of steam it consumes.

A double check on furnace efficiency is constantly kept at this boiler plant, one check being observation of the content of carbon dioxide in the the flue gases and the other the temperature of the gases entering the stack.

At a good many refineries, where any attention at all is paid to the carbon dioxide content of the flue gases, it is the custom to take a sample of the gases, from time to time for analysis with the Orsat apparatus. Such an analysis, however, gives the condition as to carbon dioxide only for that particular moment. Conditions may change the next minute.

Constant Flue Gas Analysis

At this plant, there is a constant analysis of the flue gases going on automatically through a continuous instrument similar to the Orsat apparatus and the result, in percentage of carbon dioxide content, is kept by a recording stylus.

The percentage of carbon dioxide in the flue gases is, of course, a measure of the completeness of combustion going on in the furnace. If the fuel is burning efficiently there will be a high content of carbon dioxide. If combustion is poor the carbon dioxide content of the flue gases will be low.

There is also a recording pyrometer at the base of the stack keeping a continuous record of the temperature of the stack gases. This too is a valuable guide to furnace efficiency. If the stack temperature is high, it means that there is too much draft being supplied and too much of the heat is being carried up the stack instead of being transmitted to the water in the boiler.

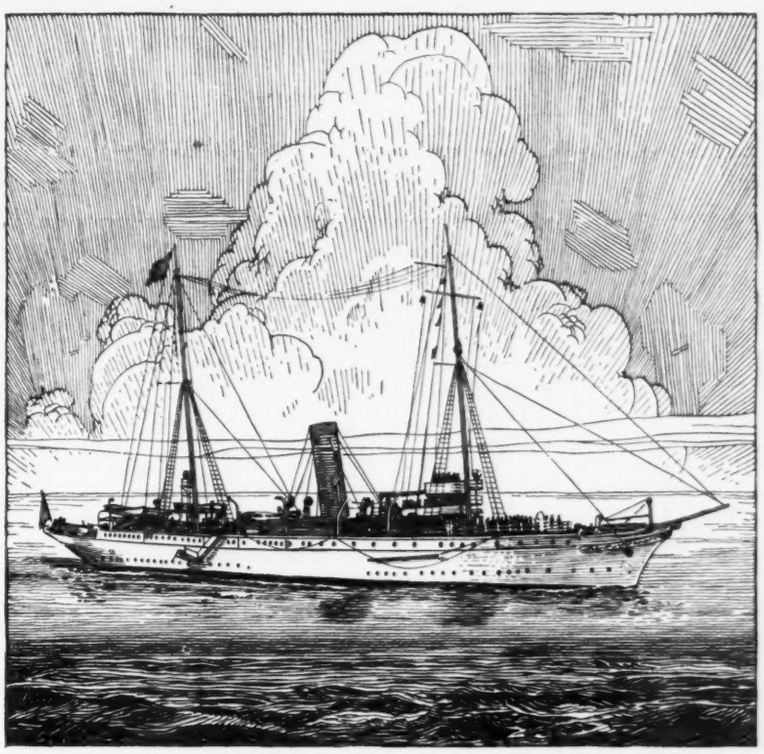
The record at this plant shows that the temperature of the gases in the stack is always below 500 F. and the carbon dioxide content of the flue gases averages 10 to 12 percent.

Cast Iron Valves

There has been considerable talk as to the desirability of using forged steel valves and fittings on high pressure superheated steam installations but cast iron valves are used entirely in this steam plant. It is the opinion of Mr. Sullivan that forged steel fittings are not necessary and do not justify their extra cost except where the temperature is above 100 degrees of superheat and the pressure is 250 pounds or higher.

Considerable study has been given by the Pure Oil refinery control committee to the proposition of installing turbo-generators to produce electric current and exhaust steam for process work. They have decided against it, because the peak load for electric current would come at a time when the demand for exhaust steam was low. The two phases of the installation would not balance.

Because of the high temperature and pressure of the steam it is possible to transmit it for a long distance with very little loss. The longest steam line in the plant is between 2500 and 3000 feet, because the refinery equipment is laid out in a straight line.



U. S. S. "Mayflower," Official Yacht of the President of the United States

In the Ship of the Presidents

THE boiler furnaces of the presidential yacht "Mayflower" have been insulated with Sil-O-Cel C-22 brick. Now the boiler room is cool. The heat of the fires is kept inside the boiler; kept at work generating useful steam. Barriers of Sil-O-Cel C-22, 2½ inches thick in the steel-jacketed walls and 4½ inches in the base, make them virtually heat tight, as waste-proof as practical construction can be.

Insulation Readily Pays for Itself

This high-temperature insulation reduces heat losses by radiation as much as seventy per cent. It weighs less than a twentieth as much as fire brick of equivalent insulating value. And it is unharmed by temperatures as high as 2000° Fahrenheit, a degree of heat seldom reached behind suitable refractory linings.

Sil-O-Cel insulation keeps heat in the harness. Properly installed in stationary boiler settings, kilns, annealing ovens, furnaces and other heated equipment, it returns its cost in about a year in fuel savings alone. Where accurate temperature control is important, it often pays for itself in a few months' time. And it serves indefinitely.

Write for the Details that Interest You

Sil-O-Cel insulation is a standard Celite *barrier to industrial waste.* There are important places in practically every industrial plant where it will pay big dividends in conservation of heat and improved temperature control. Celite service is always at your command to help you find them. Write for bulletin T-3.

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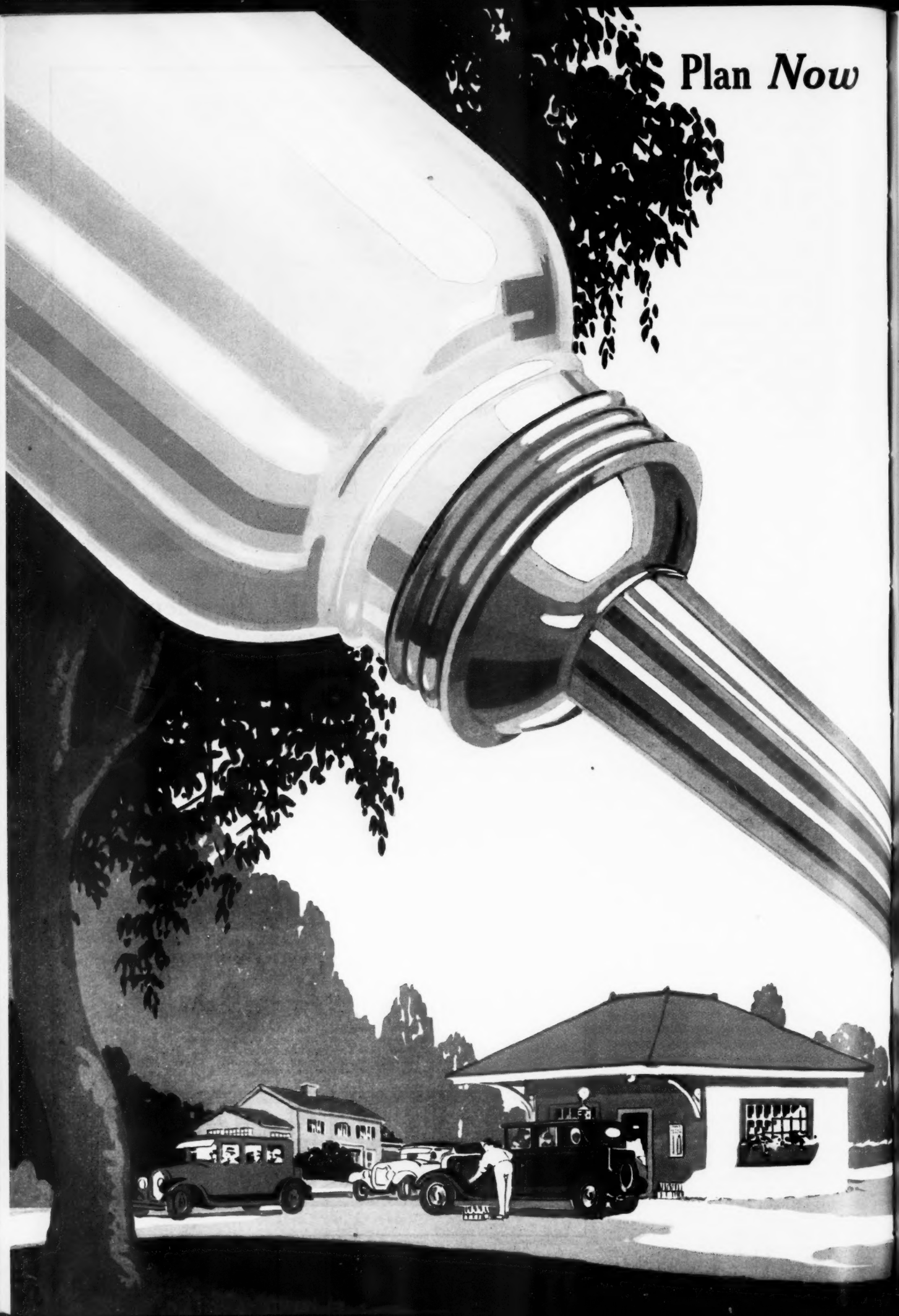
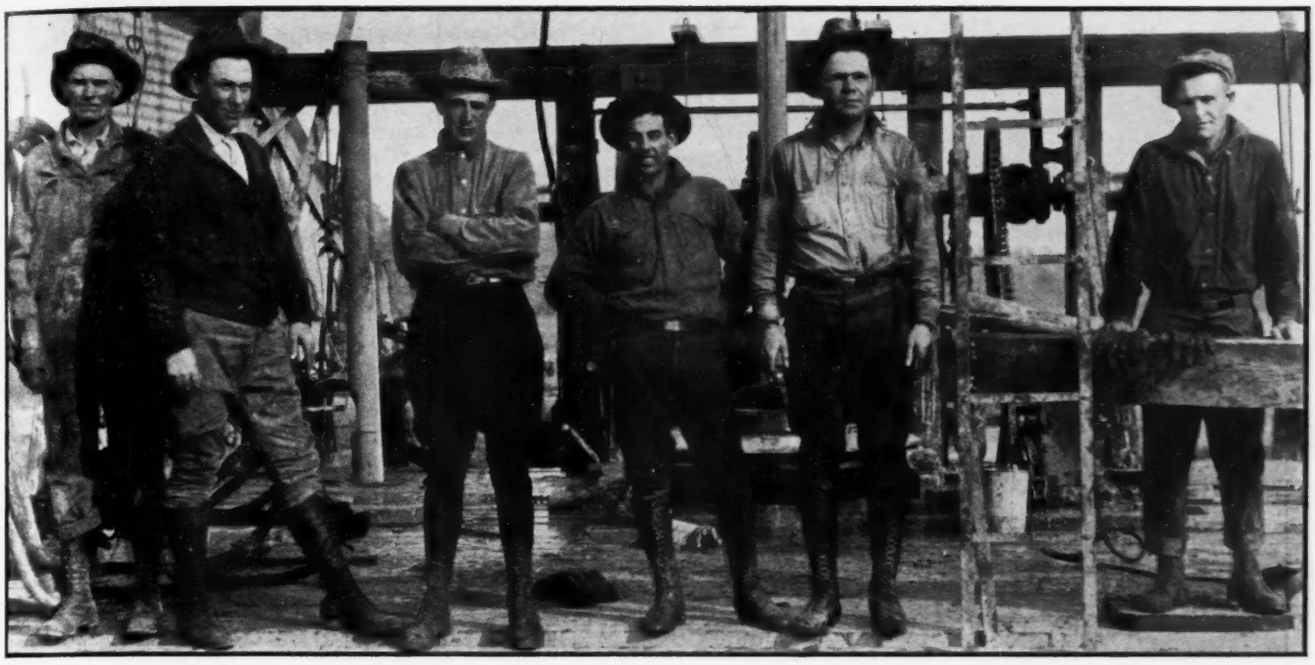

Plan *Now*



Look as though they could "pour it on 'er," don't they? They are accused of holding the world's fastest drilling record. The fast time was made in the Wortham field. Left to right the conspirators are: A. P. Beard, fireman; Roy R. Newton, contractor; Jimmie Haynes, driller; C. E. Vandiver, helper; R. J. Nicker, derrickman and A. R. Gentry, helper.

Making 917 Feet of Hole in 12 Hours

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, March 5 SUPERINTENDENT C. H. Homer of the Rio Bravo Oil Co., Houston, opened his mail and extracted an amazing report from it.

"Some pipelining," Mr. Homer remarked, as a few minutes later he laid the report on the desk of John R. Suman, general manager in charge of field operations and production.

And it was all of that.

The report, signed by J. W. O'Brien at Wortham, gave the history of what is believed to be a 12-hours drilling record in oil country operations—the making of 917 feet of hole in a single hour.

A picture of the crew making the record footage of hole is shown herewith. The report of the crew's work in the 12-hour tour referred to, under Contractor "Bob" Newton and Driller "Jimmie" Hayes is given in O'Brien's own words:

How The Trick Was Done

Time: Friday, the 13th of February 1925. Place: Wortham, Texas, Rio Bravo Oil Co. H & T C Right of Way No. 9. Subject: "Digging Hole" With One Who Can.

1. As the foregoing indicates both from the time, subject and place an article of this nature should have its appeal to those of us who follow oil field well drilling for a livelihood; especially those old timers such as Wynn Crosby, Jim Rush, W. H. Taylor and many others of the old school, and to the younger blood it will furnish room for thought upon the lines of "well digging" such as it is under the most modern method we have today.

2. Wortham six weeks ago was a bedlam of moving rigs, derrick lumber, cars of pipe, boilers, and other necessary equipment, with each company vieing with the other in the matter of speeding their respective development programs, in order to obtain the maximum share they could of the flush production. Rio Bravo Oil Co. drilling on the H&TC Right of Way, which runs directly across the proven area, had gotten an early start along with the other companies operating here and very early in the initial developing drilled in their numbers 1, 2 and 4; and it was not until our contractor that had drilled our number 2 had started drilling his next location, our number 7, that we realized we evidently had a well digging go-getter on that particular well.

3. Our number 7 was swabbed in on January 25, after nine and one half days drilling time, of which period cement was setting 72 hours, and, of course, should be deducted from the actual drilling hours. When one considers that these wells have total depth of 3000 feet and all of them strike a hard chalk around 2300 feet that is continuous for an average of three hundred feet, then you can agree with us that we were often skeptical of the daily drilling reports, when, each day they would find their way to our office with footage added to the previous day running up as high as 750 feet within twenty-four hours. So that, when Mr. Roy Newton, the contractor, was given our Number 9 to drill, our entire organization here unanimously agreed to determine just how it was being done and I personally elected myself to keep up with operations in and around Number 9; to be in position to call "HALT" if I found the bit coming to the surface in a creek bottom or in a neck of woods which is close by.

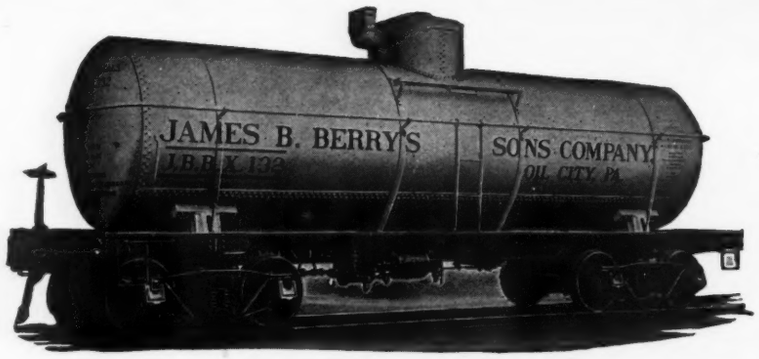
4. Drilling was started day before yesterday, the 11th. Surface casing was set at a depth of 216 feet last night, at seven o'clock, and twelve hours was the allotted time for it to set. Bright and early this morning at seven, Mr. Jimmie Hayes, the driller, and his crew began rotating; and at seven this evening they had reached a total depth of 1133 feet, making what we consider a record for feet drilled in one tour (pronounced, tower) of twelve hours that of 917 feet.

Equipment Used by Crew

5. Very likely most of you who read this article will be enterested in knowing some of the details of how this crew work.

FIRST, they have excellent equipment at their command, Lucey Twin Engines, National Upset Drill Stem, Gumbo-Buster Pumps and the like, that allow them to turn the rotary when on bottom.

SECOND, the entire crew, though young in years with reference to age,



MANY oil jobbers depend upon Berry's Sons for their supply of gasoline, kerosene and lubricating oils in tank cars.

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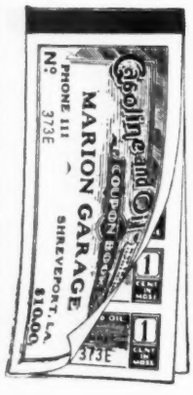

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are nevertheless experienced heads in the matter of unison of action. On several occasions I timed them when they were making a connection and their average time over five connections was two minutes. They use what we call the "GREY-HOUND," that is three four-inch drill joints, each of which have a tool joint box and pin attached.

While the driller is putting down the kelly-joint, on the previous connection, the others run one of these "grey-hound" joints into the rat-hole, when the time arrives for an additional connection, the driller draws the "KELLY" above the rotary, catches his string of pipe with slips, disconnects the "KELLY," makes it up to the "greyhoud", joint which is in the rat-hole, draws both up into the derrick sufficiently to make connection with his string of pipe left in the hole, releases the slips and continues his operation of drilling with a loss of time of, as I have previously mentioned, two minutes.

This is the operation for three joints; the fourth one is somewhat different as the driller then must disjoint his three "greyhound" joints and pick up a fourble which, during the cementing time the night previous, the driller for the night tower has prepared and set back in the derrick. In the matter of making these connections, much credit must be given the entire crew for they at all times were on their toes, knew their jobs thoroughly, and most of all, they seemed to be endowed with the spirit of willingness.

6. As to the driller, there lies the story, a man who is thoroughly acquainted with the formations in this territory; a hustler from the word go; knows the short cuts which means time saved; uses the cat head to make the fourble connections; sure of his rigging-up job that means a steady engine, a well packed set of pumps, a drill stem that will do what he makes it do; puts the bit on the bottom, lets the swivel bail play idle in mid-derrick and curses like a trooper because he can't put the "kelly" down in less than four minutes.

7. Two round trips, changing bits on each occasion, 917 foot of hole made since 7 o'clock this morning, the night driller is now taking hold of the brake and it is his until seven tomorrow morning; he is in the hole with a sharp bit, just as he left the brake for the day man, the only difference being a matter of 917 feet deeper. What must his thoughts be when he stops a moment to realize that, he, it is, who must keep up with this go-getter and in the morning turn back the brake with a reasonable amount of footage added, but WHAT IS REASONABLE?

8. What their record will be on this particular hole we do not know, but I venture to predict that it will surpass their other records and may we ask if there is any question, from the records that you have available, as to whether this record of 917 feet drilled in one tour of twelve hours is not the greatest drilled in that time?

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Tycos Cleveland
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13 inch Plain
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Scale

Tycos
Hydrometers

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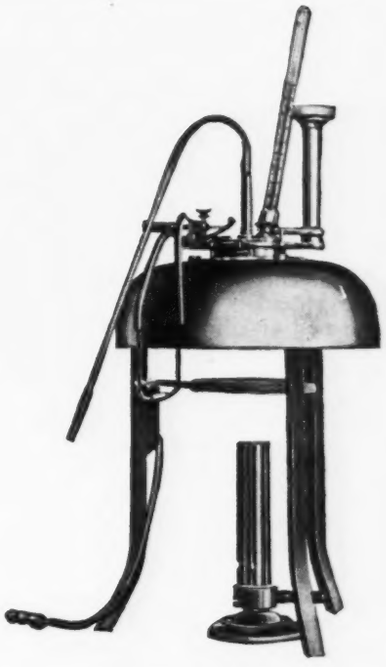
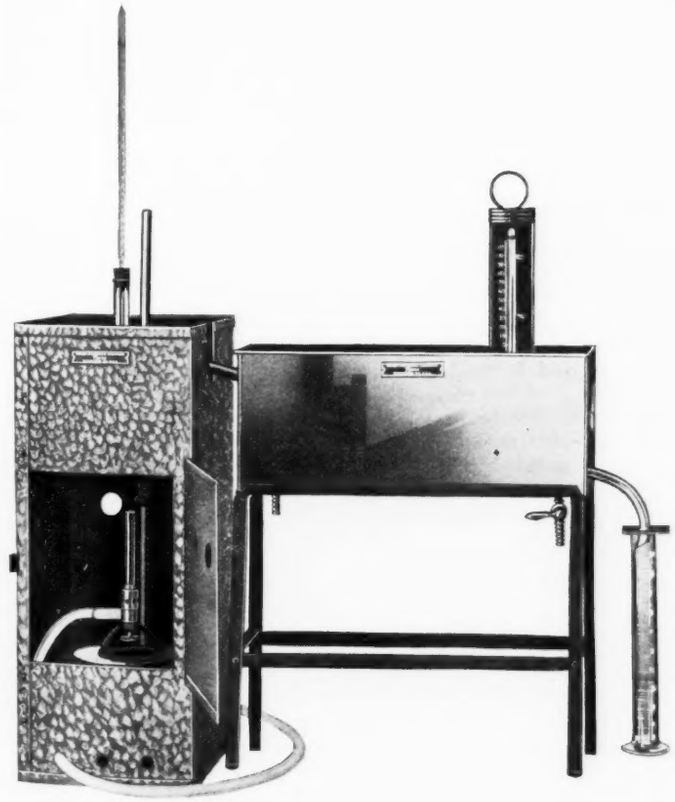
Thermo-Hydrometer
for testing
small samples



Tycos Pensky-Martin
Closed Cup



Tycos Distillation Apparatus

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THERE IS A TYCOS OR TAYLOR TEMPERATURE INSTRUMENT FOR EVERY PURPOSE

Independents Standardize Lube Grades and Start "Post" Advertising

Staff Special
CHICAGO, March 7

SPECIFICATIONS for uniform grades of lubricating oils have been developed for the Independent jobbers of the National Petroleum Marketers Association by four authorities on motor lubrication. The work was conducted under the auspices of the Independent Oil Men of America which is an organization within the N. P. M. A., composed of jobbers who co-operate in a mutual advertising campaign and use the well-known triangle and spread-eagle trade mark.

The I. O. M. A. now proposes that all of its members shall have especially good lubricating oil to sell, and that it shall all be uniform. The committee has met at the N. P. M. A. offices in Chicago several times but reached final conclusions only recently.

The chairman of the committee was J. L. Murray, head of the Corn Belt Oil Co., Bloomington, Ill. He became prominent as an authority on motor lubrication about two years ago when he started a campaign advocating more frequent changing of crankcase oil, and the campaign gained national scope.

The other three members of the committee were Jack Nourse, head of the Nourse Oil Co., Kansas City, a dealer in lubricating oils exclusively; E. J. Keitel, head of the Columbia Oil Co., St. Louis, jobber and manufacturer of lubricating oils and recognized as an authority on lubrication, and W. B. McMillan, member of the firm of Lindsay-McMillan of Milwaukee, a chemist and lubrication engineer.

All are members of the I. O. M. A. and have long been interested in standardization.

Recommendations Made

Although the committee has worked out its recommendations and handed them in to the trustees of the I. O. M. A. and President L. V. Nicholas of the national association, the exact specifications have not been made public. As a matter of fact they have not been formally adopted but there is little probability that they will be changed in any way. Mr. Nicholas says the specifications may never be made public because the material will simply be sold in five different grades under one trade mark "Independent Oil."

The five grades will be distinguished by the terms Extra Heavy, Heavy, Medium, Light and Extra Light. All members will not be required to carry all grades unless it is to their advantage. They will not have to change their own trade marks which they have spent small fortunes to advertise. They will not have to change their sources of supply, necessarily, for the specifications permit of Pennsylvania, Mid-Continent or Texas oils. No jobber will have to change his sales talk, but he may be obliged to start calling some oil "Medium" which he now calls "Heavy" or make some similar change.

Although they admit that there is much opposition in the way, and they acknowledge that it may be a long way off in the future, the I. O. M. A. is working toward the goal of having all Independent oil men and their customers speak the same language when they talk about lubricants, and all mean the same thing when they say the same words.

At the present that condition does not exist. Desirable uniformity does not even exist in all oils nationally advertised and generally recognized as good. It is entirely probable that the I. O. M. A. will have dozens of different brands reduced to uniformity of specification before spring officially opens.

National Advertising

Before summer comes and the tourists start quitting their winter quarters and migrating into the Great Lakes country to play, the I. O. M. A. will have been talking to them in publications of national circulation. It was announced by President Nicholas this week that "Independent Oil" and the insignia of Independence would be running in the Saturday Evening Post and Literary Digest beginning with May. The I. O. M. A. started out with this idea in view two or three years ago, and its growth has been slow but solid. The money to finance such a campaign is so nearly raised that the national campaign is assured.

Uniformity of lubricating oils sold by the members of the I. O. M. A. was one of the things the group hoped to accomplish before advertising in national publications was started. Now that has been achieved in theory, and is ready to put in practice this spring. After two years using the insignia on letterheads, electric signs and outdoor posters, individual companies can be assured that their trade is familiar with it and will appreciate its significance when they read about it in journals, accompanied by the names of other oil men selling material of the same character they buy at home.

A few state groups have used the poster panels of the I. O. M. A. and have financed out-door campaigns jointly. The Illinois Petroleum Marketers' Association and the Wisconsin Independent Oil Jobbers' Association, both engaged in the 1924 poster campaign as groups and individual members of the I. O. M. A. used the posters in plenty of other states.

Last year 14 Independent companies in Illinois jointly and simultaneously advertised "Independent Oil" in 40 Illinois towns. Almost every member of the Wisconsin organization took part in the program in 1924 and the association there, as the one in Illinois, is sure to do more along that line this year. In both states the participating jobbers were pleased and satisfied with results. All have expressed gratification that the I. O. M. A. is offering four changes of copy for poster panels this year, where only three were used last year.

Uniformly graded lubricating oil scientifically standardized has been the missing link in the I. O. M. A. activities over the past two years. Most of the readers of National Petroleum News know how the members of this group of Independents use interchangeable coupon books and accept each other's coupons whenever they are presented in payment for merchandise. uniformity, and the avowed Independence of the dealer members has made its impression on the motoring public already. All of this with the standardization of lubes promises to make lively copy in the Saturday Evening Post next spring.

There is thought to be little chance for the lubricating oil specifications to meet disapproval by any lubricating engineer. They are so much more rigid than those demanded by most lubrication engineers, and represent so much better oil than many motorists use all the time, that in experimental test and in actual experience they are expected to meet the requirements of the most skeptical.

This was brought out last week when the committee, Messrs. Murray, Nourse, Keitel and McMillan, had a meeting with a committee of the Society of Automotive Engineers.

Standards Are Lofty

The meeting was held at the Old Colony Club in the La Salle Hotel in Chicago. The S. A. E. was represented by Robert Burnette of the S. A. E. division of standards and a number of other engineers including A. B. Dawson of the General Motors Corp. They found no criticism to offer in regard to the specifications of the I. O. M. A. committee. But they did withhold their official sanction because, they claimed, oils of that quality can not be produced in great volume.

Volume production being nothing in the lives of the Independent oil men concerned they preferred not to lower their standards and the joint committee adjourned "with everybody friendly." The Wisconsin Independent Oil Jobbers' Association at its monthly meeting in January considered standardization of lube oils but postponed action until the I. O. M. A. should name its specifications. It is considered likely that Wisconsin will soon adopt the new standards, almost unanimously as a state.

Oil Companies Must Gauge Their Growth by Increase in Autos

By Warren C. Platt
Editor, National Petroleum News

Summary of Remarks before Ohio Jobbers at Columbus, Feb. 26

THE individual oil company, no matter how large or small, must gauge its growth somewhat by the general growth of the market.

If an oil company's gallonage is growing much faster than the natural growth of its market, then it is simply taking business away from some one else and sooner or later there will be trouble. The company or companies losing that business will some time be forced to stand and put up a hard fight in order to keep their business profitable. When the competitor's gallonage gets so small that he begins to lose money at stations then watch out for cut throat competition; or if not cut throat then the most vigorous and intelligent competition.

The oil industry has had its market thrust upon it. The market has been provided by the automobiles. It has existed and grown only to the extent the automobile manufacturers have been able to sell cars to the public. The oil industry has had nothing to do with this sale. One sometimes thinks that is a point oil company executives overlook in their drive for gasoline—that is that no sales work that the oil industry is now doing is increasing or will increase the size of the market. The clothing man, the dressmaker, the furniture maker can all coax the ultimate consumer to take on one more suit, or dress or piece of furniture than he intended or has actual need of. But the oil industry can't coax the automobile owner to consume one more gallon of gasoline in his car than his engine will burn.

It has not required salesmanship to supply a demand that stands without one's door and cries for gasoline. So far as gasoline is concerned—and with some exceptions the oil industry, to date has been a distributing system, not a sales system. Where actual selling has been put forth on gasoline it has been either to put over a higher quality gasoline at a premium price or to take gallonage away from some one else.

The oil men who have recognized this fundamental truth and have governed their actions accordingly have had less price fights than those who blindly plunged ahead thinking they could get increases in gallonage out of proportion to the growth in the market. I knew one oil marketer who always carefully checked his gallonage against his competitors and saw to it that it did not go beyond a certain percentage. He took his increased gallonage in the natural increase of the whole market, but he allowed his competitors to live. He built up a very large company that always made an excellent profit. He had a minimum number of price fights. In fact he gradually shrank his percentage of the business, as competitors came in, but he always did a handsome increase.

	Bulk Stations	
	S.O.Co.	Ind.
1912	218	37
1923	310	660
Increase	42%	1700%

You marketers here in Ohio should check your growth against the growth in automobiles in this state. Here it is for the past 12 years, the number of passenger cars and trucks registered in Ohio each year with percentage of increase:

		Per Cent
		Increase
1912	63,066	
1913	86,054	36
1914	122,504	41
1915	181,332	48
1916	252,431	39
1917	346,772	37
1918	412,775	19
1919	511,031	24
1920	615,397	20
1921	720,632	17
1922	859,504	20
1923	1,068,700	24
1924	1,244,000	17

As to the future increase in automobiles one thing seems certain and that is there will be no more periods of years when the increase will be at the rate of 36 per cent to 41 per cent as from 1912 to 1918. Whether the saturation point is reached cannot be said, but a number of automobile manufacturers have lately admitted it may not be far off.

When this saturation point is reached it will mean to the oil industry, that the period of tremendous growth in gallonage each year has passed. The oil industry will undoubtedly find for a great many years an increase in gallonage after that saturation point is reached due to the greater use of cars and particularly to greater use of petroleum for other purposes. But the marketer who figures he can double his gallonage each year, in that time, will only be bringing on the worst price war he was ever in.

The last ten years have gone so quickly in the rush to supply the gasoline that, until we stop and look back, we little realize the tremendous growth of the oil industry and the equally big growth in the competition within the industry. Here it is so far as the state of Ohio is concerned:

In 1912 there was the Standard Oil Co., and 19 Independents of all kinds.

In 1924 we have the Standard still but 433 Independents, of which 145 started in 1923 an increase in 11 years of 2180 per cent. The number of Independents today is probably at least 500 in the state.

Here is how oil marketing equipment has increased in that time:

	Tank Wagons		Automobiles
	S.O.Co.	Ind.	registered
	390	73	63,066
	751	1028	1,068,700
	93%	1300%	1600%

Of course the Standard has greatly increased the capacity of its bulk stations and its bulk stations were well distributed throughout the state by reason of the old kerosene business.

The great growth in competition is also shown by the number of service stations in the state today. The Standard Oil Co. has 493 service stations or 16 per cent; Independents have 2500, a total of 2993 service stations.

The Independents have 3 service stations to each bulk station while the Standard has 1½ service stations to each bulk station.

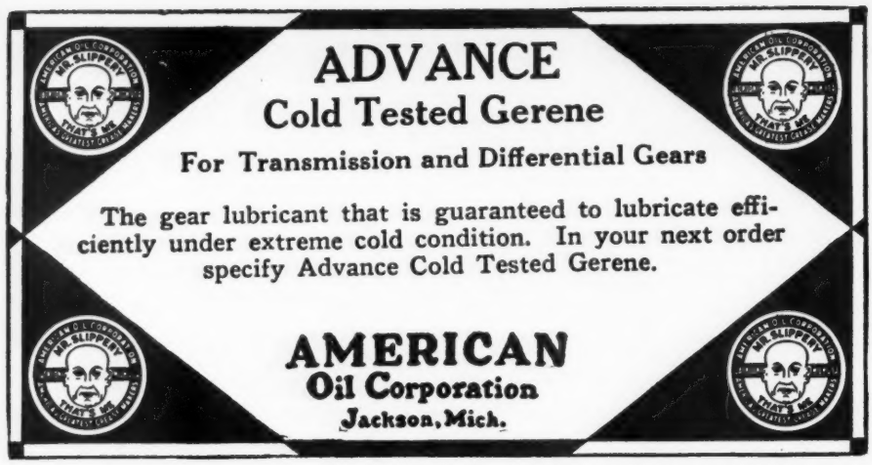
How the automobiles have increased around the bulk station equipment is shown by the following table:

	Number of automobiles per	
	Bulk Station	Tank wagon and Trucks
1912	247	136
1923	1101	600

The above is for all companies in the state.

The average number of passenger cars today—close of 1924—per service station is 367 and of trucks is 53 or total of 415.

Taking 300 gallons of gasoline per each passenger car a year—a figure which is 6 gallons higher than one big oil company uses after making careful check of several thousand passenger cars, this would give 108,000 gallons a year to each of the service stations from passenger car business alone, assuming that all of the gasoline was sold through filling stations. What percentage is actually sold in that way is a guess. In the big cities, where the big gallonage is, the percentage may be 90 per cent or even higher. Assuming that 25 percent of this gallonage goes through garages and curbstone pumps, that would leave an average for service stations of 78,000 gallons for the year on the basis of the actual number of passenger cars in use Jan. 1st, 1924. Tak-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Cold Tested Gerene
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The gear lubricant that is guaranteed to lubricate efficiently under extreme cold condition. In your next order specify Advance Cold Tested Gerene.
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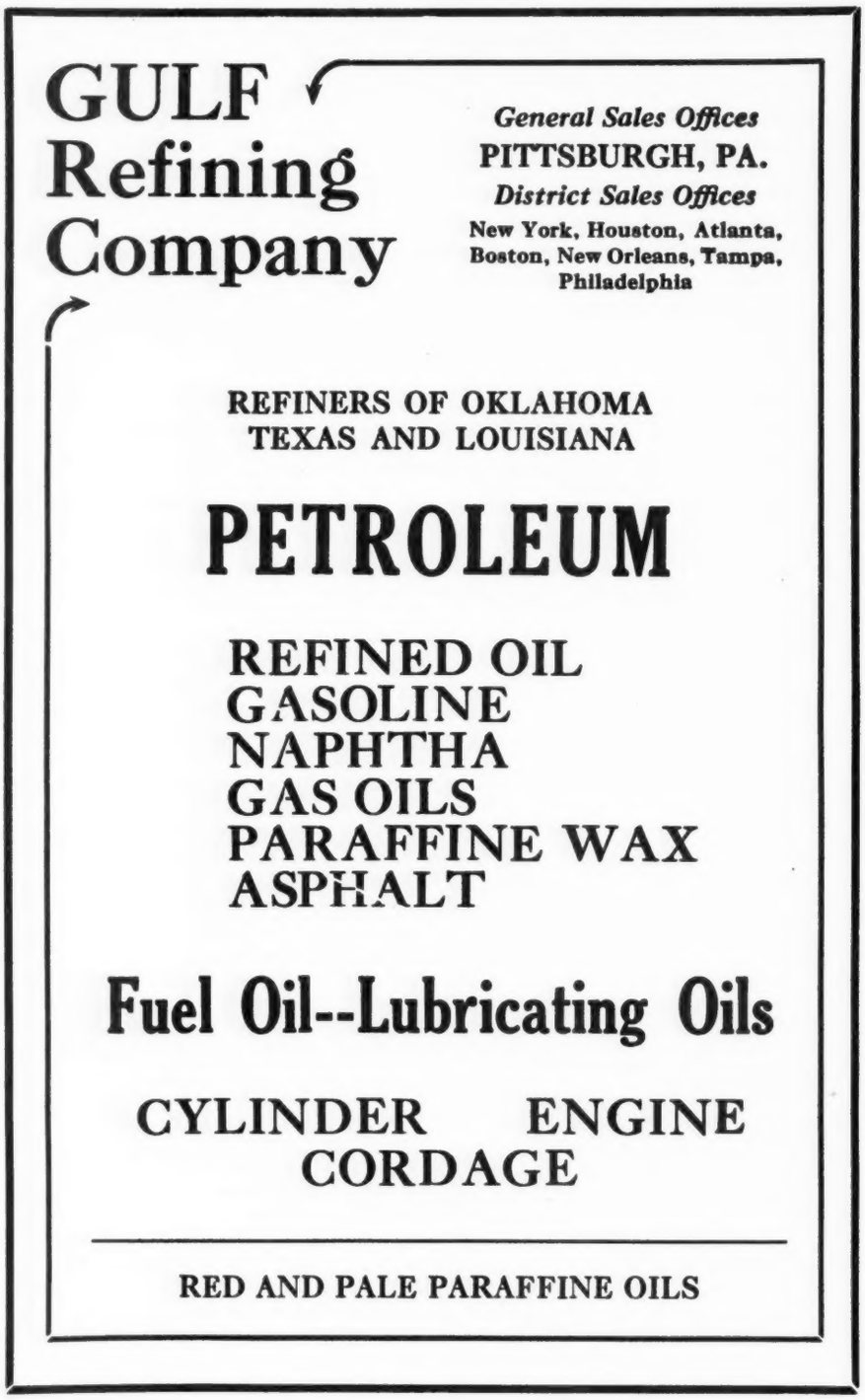


ing 1500 gallons as the average consumption per truck per year, and this is the average used by a big company after careful investigation, and allowing for half the trucks taking gasoline from service stations this would give an average gallonage of 14,000 for the year at each station at the close of 1924.

Any figuring of this sort is subject to all kinds of error and should not be taken except with the greatest of charity. We all know of hundreds of service stations that won't do anywhere near this volume of business, and we know of some that will do more. We do know that the majority of service stations should figure their business on passenger cars exclusively and leave the trucks out of it. Probably way less than half of the stations in the state serve any number of trucks at all, so that, if a station can't make money on its passenger car business, it will fail.

Not So "Overbuilt"

All these figures, while they are large, do not show the oil industry is so terribly "overbuilt," as many people have been saying. From the standpoint of any one company that would liked to have had more business it may be "overbuilt." The Standard could well say that is so, because back in 1912 it estimates it was doing nearly 80 per cent of the business but today it estimates it is doing about 35 per cent. Standard Oil business in most other states has shrunk in the same way.

We all know of certain districts and certain corners that are obviously "overbuilt" with pumps or service stations or both. There is nothing in the world that will get good judgment into some men's heads. Some men will persist in flocking to where the mob seems headed and won't stop to figure out whether it will be profitable. I have just heard of one jobber who has failed to make a success of his business where he is, who wants to sell out and hurry to another town of which he knows absolutely nothing except that he has had a report of a jobber there making a big increase in gallonage the past year. The first jobber isn't even taking the trouble to see if the report is true, which it is not.

That type of man is the same who hurries wherever a rush is headed, regardless of reason. He rushes to the gold fields, to the oil fields. He rushed to the northwest during the land boom of the last few years and then when he went broke through his own folly cried aloud to the government for help for himself as a "farmer." He rushes into the radio business, into candy stores, into anything so long as it is over his fence a piece. He never is anything but a wandering speculator and generally a failure.

The men who have made successes in oil or anything else are those who have settled down and worked day and night for years and been real oil men, or real farmers, or real gold miners. They are the men who have taken the bad with the good and not "welched." Those are the men who will stay in the oil

industry today and weather this period of greater competition that we are entering.

Obviously there won't be the handsome increases in business in the next few years in Ohio, or any other state for that matter, because there won't be the same percentage of automobiles bought each year. If the auto manufacturers make only the same number of cars this year that they did last that will still be a less percentage of the whole. Last year the increase was 17 per cent. This year if the same number are made the increase will be only 15 per cent and there seems some doubt in various automobile men's minds if the number of cars made this year will be as large as last. Truck increase last year was 8 per cent and this year, if no increase, will be 7 per cent.

Possible Rate of Increase

But even this smaller percentage of increase in Ohio will amount to considerable new business which will be profitable, provided every one doesn't try to get it all. Assuming no increase in the number of cars to be sold in the state this year, we can probably safely figure on an increase in gasoline gallonage for passenger cars of at least 24,000,000 actual gallons for this year.

If 75 per cent of the passenger car business goes to service stations and one assumes an average of 78,000 gallons per service station as last year, this increase will provide business for 320 more service stations at last year's estimate gallonage per station. Trucks will add a possible 9,000,000 more gallons to the year's total, or with one half of the truck business through stations, an average on last year's basis of 14,000 gallons each for the year for each of the new 320 possible stations.

An estimated 320 new service stations figures out less than one new station per oil company for this year. There will undoubtedly be more stations built because the oil industry is of such size, and has attracted such a large number of new people to it, that the death rate of companies for various causes is going to be high for a number of years if the present trend of markets toward a narrow margin for the marketer is maintained, as seems probable now.

The oil business has without question come to a period of keener competition when only the really fit will survive. Every indication so far is, unless a new oil field of big proportions is found and unless the western refiners lose their cautiousness which has tempered their operations all winter, that we won't have a glut of gasoline on the refinery market this year sufficient to break that market down below a profitable figure to the refiner, which means that there won't be any wide margin for the marketer. The veteran oil marketer who has operated in years past on a 2 to 3 cent margin and made money will have less difficulty getting back to a profitable operation near that figure than the new man who jumped into the business on the assumption that the 6 and 8-cent

Give Them What They Want

Brookins Oil Measure

Brookins Steel Price Charts fit directly on pump. Changed in an instant. Show quantity prices up to twenty gallons.

Brookins Emergency Gas Can is made in two and five gallon sizes. Flexible metal hose. Can't spill or splash.

You *need* Brookins Measures—a complete set of them. They will save time for you and time for your customers. They will help you give better service and quicker service. They will help you service more cars, help you hold your customers and help you *sell more oil.*

The flexible metal hose easily reaches any oil intake. The thumb-valve controls the flow. The special lip prevents spilling. In no time at all the measure is drained and your customer is on his way—satisfied with your service, and pleased with the knowledge that he got the kind and grade of oil he wanted.

With the Brookins Measure you don't need a funnel; you don't lose a minute's time; you don't waste a drop of oil and you *do* hold the confidence of your customers. They can see the oil they're getting as it comes from a properly marked oil pump.

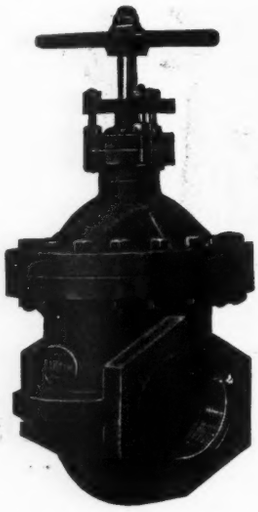
Order a complete set of Brookins Measures, in one, two, four and five quart sizes, from your jobber. If he can not supply you, write us.

THE BROOKINS MFG. CO.
342 XENIA AVE. DAYTON, OHIO

Brookins
SERVICE STATION EQUIPMENT

Brookins Measures are Service Station Treasures

Ludlow Leadership



The LUDLOW DOUBLE GATE VALVE is the best that experience, materials and skilled labor can produce.

If there ever is a better made or a more efficient valve produced than the Ludlow Valve of today, we will be the first to make it.

Write nearest office for prices or information.

The Ludlow Valve Mfg. Co.

(*Established 1866*)

Factory: Troy, N. Y.

Branch Offices: Kansas City, Mo.; Chicago, Ill.; Pittsburgh, Pa.; Boston, Mass.

The Vilter Mfg. Co.

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Vilter High Speed Refrigerator Machine

Oil Refinery Equipment
Refrigerating Machinery
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Gasoline Condensers

We will gladly figure on your requirements

Branch Offices in All Principal Cities

MARINE DEPARTMENT

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FRICK BUILDING PITTSBURGH, PENNA.

BUILDERS OF

STEEL BARGES

for RIVERS *and* HARBORS

CAR-FLOATS

margins of the past two or three years were regular affairs authorized by the Constitution of the United States and the Standard Oil Co.

Out of this keener competition will come a healthier industry, a more profitable industry as a whole and, because one's success in marketing will turn on one's ability to watch details and keep expenses down, it will be a period when the smaller companies with their owner-managers will have better opportunity to shine in cultivation of that much longed for profit than the big companies.

Keen & Woolf Enlarging Plant, Buy Crude

HOUSTON, March 7.—Keen & Woolf Oil Co., operating a 1200-barrel daily capacity lubricant plant on the Houston ship channel, has purchased the Schilling 2½-acre producing property at Goose Creek that previously was owned by Bassett Blakely. About 350 barrels of A grade Coastal crude is involved in the transaction. Consideration was announced as being approximately $200,000.

The Keen & Woolf plant, according to R. E. Benner, sales manager, is being enlarged to daily capacity of 1500 barrels. Construction work will be completed about May 15.

Three More Sentenced for Selling Stock

By Special Correspondent

FORT WORTH, March 7.—The United States government has been in a measure a party to the crimes committed by fraudulent oil promoters, declared Federal Judge James C. Wilson, this week, when passing sentence on three men convicted of using the mails to defraud in connection with a refinery at Pioneer, in 1923.

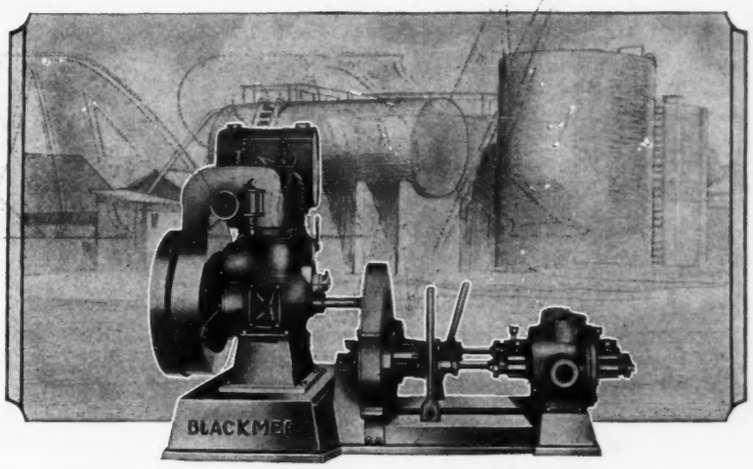
Thomas J. Ryan was given 18 months in the penitentiary, C. D. Nabors 15 months, and J. B. Nabors 90 days in jail.

The government was quiescent for several years while the worst of the frauds were raging, the judge said, but that in no way excused the individual offenders.

The three defendants through their company, the American Oil Company, sold $250,000 worth of stock, of which they invested $61,000 in a small refinery at Pioneer, Eastland county. Their sales literature promised 500 per cent dividends.

DYERSBURG, TENN.—C. E. Davis, owner and operator of the Auto Supply Co. and of the Davis Service Stations, has completed a service station here, which is one of the most modern in the city, according to C. H. McLeod, book-keeper of the Auto Supply.

BLACKMER ROTARY PUMPS



They Wear In—Not Out

The Blackmer principle of operation enables the Blackmer Rotary Pump to take up its own wear. This insures a continued and even wearing-in of parts, eliminating slippage and loss of efficiency. It makes replacement of parts practically negligible, and thus effects a very low, fixed, operating cost. The principle of working adjustment is proved correct by twenty years of satisfactory operation by Blackmer owners.

The Standard Double Unit, picture above, is specially suited to meet the needs of bulk distributing stations.

This new double unit has been standardized to profit by the economies of large quantity production, making possible a reduced price. The high standard of Blackmer quality remains unchanged.

It consists of two 100 G. P. M. Blackmer Pumps, mounted with clutches, on an extra heavy, cast iron base, with or without space for a firewall.

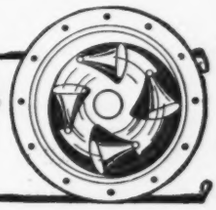
It is equipped with either of three types of power units. Electric unit will accommodate 1800 speed motor, 2 to 5 H. P. Engine unit includes Novo engine of 2 to 4 H. P., or New-Way air-cooled 3 to 5 H. P.

Built for long service and subjected to the same rigid tests which all Blackmers must pass, this new model will deliver its rated gallonage, year after year, with scarcely perceptible drop in efficiency.

We continue to build pumps to specifications when desired. Our engineers are always ready to serve you on any pumping problems.

Write our nearest branch office for catalog and prices.

BLACKMER ROTARY PUMP Co.
Petoskey, Mich.
Offices in nineteen principal cities



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Make use of waste heat to improve the economy of engines and turbines and for all oil treating operations requiring the use of high temperatures. They are producing worth-while results in many well-known refineries today. Let us show you what steam and fuel savings they can effect in *your* plant.

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We Guarantee Results in black and white—with the

St. Louis Pump and Equipment Co. ST. LOUIS LIQUID HANDLING EQUIPMENT

X-RAY PLAN PUMP

REG. U. S. PAT. OFFICE.

The two new fundamentals of business development in the X-RAY Plan are so thoroughly incorporated mechanically in the workings of our new X-RAY Pump that each is dependent upon the other for success. Therefore, the X-RAY Plan of marketing is a copyrighted and exclusive method licensed for use only where X-RAY Pumps are installed. What can be expected of such a combination at any filling station is well illustrated by the following figures, which are typical of the service station using the X-RAY Plan and X-RAY Pumps:

One example—a two-pump filling station:

Average monthly gasoline sales before use of X-RAY Plan, 11,200 gallons—or 4½ gallons per car.

Average monthly gasoline sales after X-RAY Plan was followed, 15,750 gallons—or 6¼ gallons per car.

Average monthly sales of lubricating oil before X-RAY Plan was followed, 254 gallons.

Average monthly sales of lubricating oil after X-RAY Plan was followed, 412 gallons.

Increase of gross business without including any fluctuations in oil prices, $977.00.

And this example of gain is made by an insignificant investment of interest and depreciation charges in X-RAY Power Pumps and a conscientious application of the X-RAY Plan.

Modern principles of merchandising were carefully developed along with a new type of X-RAY Pump, to give complete cooperation between the pump and the service station salesman.

If followed assiduously, the X-RAY Plan will do more to stimulate gas, and particularly oil sales, than any method ever conceived. What it will do for you is plainly set down in a fail-proof guarantee.

Your copy of X-RAY Plan is awaiting your address—send now!

Let the oil take the burden of wear not your car Renew oil often
A part of our service is to see that you have a safe amount of oil
OIL

This illustrates one of the selling elements in the X-Ray Plan.

Big Lake Field Considered in Relation to Other Limestone Developments

Article 6 in a Series on Texas

By Paul Wagner
N. P. N. STAFF WRITER

ANY attempt to appraise the productivity of oil fields in the Marathon Fold region of Texas must take account of the varying characteristics of limestone pay horizons in this and two other partially developed districts.

Because of Big Lake field development, in southwestern Reagan county, the Marathon Fold region is gradually growing in importance. Other fields undoubtedly will be found on the fold responsible for the oil accumulation at Big Lake, or along parallel folds in the general region.

It is not intended here to discuss prospective territory, in an exploratory sense, except to recognize the probability that other fields will be eventually found and developed in the Marathon Fold region.

Future fields, when, if and as found may be considered in advance as probably to be broadly comparable to the Big Lake development with a single exception. The exception has to do with the intensity of drilling, which will be largely governed by the character of leaseholds.

The industry has no right to expect that future fields in the Marathon Fold region will be solidly held by as few as two operating companies, as in the Big Lake development; although the relatively large leaseholds in prospective areas will tend toward normal rates of development rather than intensive operations.

A future article will survey the general territory affected in an exploratory sense by the development of the Big Lake field. Here, it is intended to utilize such factors as may be consolidated into a study of production itself.

* * * * * * *

THE staying qualities of wells in the Big Lake field are reflected in an accompanying table by their producing records in comparison with the initial flows attributed to them. It should be taken into account, however, that no intensive operations have been carried on in the field.

The table makes no attempt to show the present productions of wells in the Big Lake field, which, however, will not vary greatly from the February 1, 1925 figures. The more recent comparisons are intended as checks against initial productions and completion dates as bases for the computation of percentage declines over the varying periods of individual well productivity.

Comparisons of the stability of Big Lake production against Luling and Ranger territory results, however, should include consideration of operating intensity. As developed to date, the Big Lake field has been generally drilled on the basis of one well to 40 acres of drainage area; whereas Luling was developed with wells spaced 600 feet apart and the Breckenridge field included town lot drilling.

Chemical Analyses of Limestone Producing Horizons

Constituent Present	Ranger Black Limestone (Per Cent)	Breckenridge Gray Limestone (Per Cent)	Reagan County Dolomitic Limestone (Per Cent)
Silica	45.3	1.1	67.0
Iron and Alumina	3.5	1.1	*
Manganese	Trace	Trace	*
Calcium Carbonate	26.1	53.0	33.0
Magnesium	.3	.2	*
Carbon Dioxide	20.4	41.5	*

*Detailed analysis not available.

Result in Wide Spread Areas

The various fields of the General Ranger territory and the Luling development of south central Texas form the background of limestone production as studied with relation to Big Lake.

In the General Ranger territory, the Ranger, Caddo, Breckenridge and Desdemona fields were the most important. These had their inception within 18 months after the discovery of the Ranger pool, in Eastland county, in the fall of 1917.

The Ranger pool, as distinguished from the Ranger territory, produces from sands embedded in the black lime formation of Pennsylvanian age that is identified as being a part of the Bend series. The Caddo pool, in eastern Stephens county, is also productive at the black lime horizon.

Breckenridge production, coming from a gray lime formation, was more prolific in the early stages of development, both as regards the greater initial productions of wells and their ultimate yields. The Breckenridge gray lime is itself the producing horizon in contrast to the sand conditions in the black lime in the Ranger pool proper and at Desdemona.

Luling Still Different

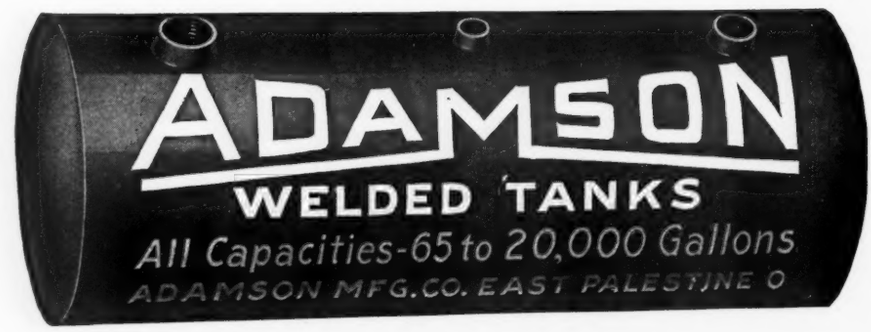
The Luling field of central south Texas has been previously identified as structurally located on a continuation of the East Texas fault zone, which produces from the Woodbine sand at Mexia, Wortham, Powell and elsewhere. As pointed out in earlier articles, however, the Woodbine sand is not laid down as far southwest as Luling and the productive horizon in this Caldwell county field is the Edwards limestone.

Luling has one thing in common with Big Lake. It is the first productive field in the geological classification it represents and, similarly, it may be con-

Comparative Production Big Lake Pool, Reagan County, Texas

Company—Lease	Well Number	Date Comp.	Initial Prod., in Bbls.	1-3-1925 Prod., in Bbls.	2-1-1925 Prod., in Bbls.
Big Lake Oil Co.					
University	1	5-28-23	60	60	60.70
University	2	1-18-24	30	10	5.00
University	3	1-17-24	31	off	off*
University	4	4-25-24	125	58	65.65
University	5	4-29-24	60	45	40.56
University	6	.....	Dry	0	0
University	7	5-11-24	Dry	0	0
University	8	7-26-24	130	91	83.32
University	9	6-20-24	1200	745	692.59
University	10	7-19-24	1500	480	364.08
University	11	8- 2-24	3965	2035	1836.56
University	12	11- 1-24	1700	1225	1048.43
University	13	11-29-24	3300	2080	1548.58
University	15	1-23-25	2000	....	1624.82
Texon—Group 1 Companies					
University	1	8-30-24	2348	1100**	1250.00
University	2	1-10-25	3200	2500**	1650.00
University	3	12-13-24	2180	....	1975.00
TOTALS			21,829	10,429	12,245.29

*Running 8¼ inch collar buster.
**Estimated



Your Ancestors Bought in One Place

Then "caveat emptor" (let the buyer beware) added emphasis to the policy of securing a reliable source of supply even in the homely articles of that day.

Still, was there not a deeper wisdom in that policy? Did not the assurance of quality and a fair price far outweigh possible savings by shopping around?

Likewise, does the dealer and jobber today not gain more by an established buying connection where quality and service are assured?

Think it over. Then write us and let us talk about it.

The Globe Oil & Refining Co.

Manufacturers Petroleum Products

Refinery: Blackwell, Oklahoma
Sales Office: Atlas Life Bldg.,
Tulsa, Oklahoma

sidered to point to other important developments in an area extending 100 miles, or more, both northeasterly and southwesterly from it.

Possibilities in the area for which Luling constitutes a pivot of exploratory work were discussed in an earlier article. Therefore, this field is mentioned here for the purpose only of identifying the producing formation and its relation to other limestone pay horizons.

The Edwards limestone of the Luling field has been brought to a porous condition approaching the honeycomb, or cavernous, stage by the circulation of underground waters which subjected the dolomitic formation to selective leaching. Action of the waters in eliminating the calcium carbonate in the formation and leaving the magnesium content in the leaching process brought about a condition somewhat similar to that found in the Tamasopa lime pay of the South Fields of Mexico. The Edwards and Tamasopa limestones are geologic time equivalents.

Geologic Age of Formations

The Edwards limestone is of Upper Pennsylvanian age in contrast to the Bend series of the General Ranger territory being of lower Pennsylvanian classification. The productive limestone of the Big Lake district is found near the bottom of the Permian beds, although the oil is generally believed to have migrated upward to its point of accumulation from the underlying Pennsylvanian formation.

It is, of course, possible that future fields of the Marathon fold region will develop pay levels in which the chemical compositions of the producing horizon will vary somewhat from the known constituents of the Big Lake limestone. As an example, the Edwards limestone is believed to reach a higher phase to the northeast of the Brazos river in the Luling-Mexia fault zone region.

Operators who watched the expenditure of millions of dollars in an effort to bring in a field at Kosse, in southwestern Limestone county, have many of them taken the position that the Edwards is not porous enough in that part of the area to contain important accumulations. They got little encouragement from the Jones well of the old Humphreys Oil Co., two miles north of Kosse, which in 1922 produced 48,000 barrels, total yield, from the Edwards at 3760 feet.

A more recent test, two miles southwest of the Jones well and two miles due west of Kosse, had encouraging shows above the Edwards and from 3640-3650 feet in the Edwards but it had failed to make a well at total depth of 3690 feet, where it was as deep in the lime as the Jones well, elevations, etc., considered. This was the Harrison et al test on the Preston farm, which has been closely watched since the first of the year.

The presence of the Edwards at the 3400 foot level in the Wortham field, western Freestone county, about 35 miles northeast of Kosse, has been established

by the Rio Bravo Oil Co., and the examination of cores showed the presence of oil. The test has now been drilled considerably below 3600 feet but without its completion as a well. As it stands, the Rio Bravo test, No. 14 on the H. & T. C. railroad right-of-way has yet to establish the existence of commercial oil in the Edwards this far north in the state.

The reader may feel that the writer has rambled far afield in a discussion of the future of Marathon fold production because of the detailed consideration given to Luling and the potential producing area it represents. The remarks are considered appropriate, however, as providing precedents for the consideration of limestone production in general.

Luling, which is now about three years old, has produced approximately 14,500,000 barrels of oil. It produced roundly 11,500,000 barels in 1924 and 3,000,000 barrels in 1922 and 1923, principally in 1923. Its daily production is now just below 30,000 barrels daily, some 63 per cent of the daily total being in the hands of the United North & South Oil Co.

When Luling development first got under way a great deal was made of its producing from a limestone, and the old time bugaboo against type of formation was argued against it. Estimates of ultimate yield did not concede the field more than 8,000,000 to 10,000,000 barrels. Now, with 2000 acres of proved ground to its credit and average per acres production of more than 7000 barrels, the ultimate yield estimates reach as high as 25,000,000 barrels.

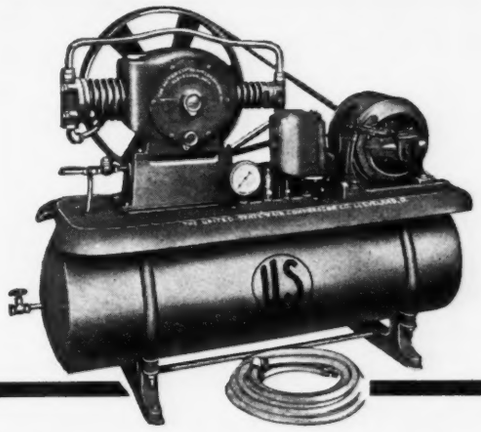
Ranger Territory Production

Production figures on the General Ranger district are available only by counties, which do not make sufficient segregation of barrelage to differentiate as between the yields of the Ranger black lime wells in comparison with those producing from the Breckenridge gray lime. Production from the latterly mentioned horizon is, however, in the preponderance in Stephens county, which has yielded approximately 98 million barrels since development began in 1918.

Eastland county, which includes the Ranger pool proper and part of the Desdemona pool, is credited with roundly 53 million barrels total yield since the fall of 1917; Desdemona production, which has been computed separately, had amounted to almost 24 million barrels, January 1, last.

Shallow production from Strawn series sands in this general territory had not been segregated from the figures covering total yields to date, but this fact is of relative unimportance when it is considered that not more than 1 per cent of the total recovery of 175 million barrels in the general territory can be attributed to these levels.

Yearly production figures for 1924 show Breckenridge yields totalled 4,004,000 barrels; Caddo, 2,239,768 barrels;



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Simple, extremely so—no counteracting oil check or anything to get out of order or require adjusting. The most practical and economical Tower built today. Balanced perfectly. Requires less hose, which is always clean. U. S. method of reinforcement makes it impossible to bend hose arm. Two oil cups make oiling and greasing easy. Send for full details.

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The Relation of the Pump to the Tank Below

THE pump above and the tank below must work hand in hand. Each is but a unit in the system—a link in your chain of service. If the pump becomes broken, it can be repaired quickly because all parts are above the ground. But a leaking tank throws the service station completely out of operation. That's why service stations need tanks that will not leak. They need Youngstown Tanks.

With each Youngstown Tank goes an iron clad guarantee against leakage. For Youngstown Tanks are built so well that they cannot leak. All seams are riveted—then welded tight. Extra heavy plate is used. They look like boilers, not like tanks. Our rust resisting paint prevents corrosion. All tanks are tested under pressure. Underwriter's labels can be attached to them.

Standarized Youngstown Tanks are made to meet every demand of steel storage. So if you have any steel storage problem, write us, as we have usually been able to give valuable suggestions to filling station operators and bulk station distributors

Twenty-five years of knowing how backs the judgment of Youngstown Tanks

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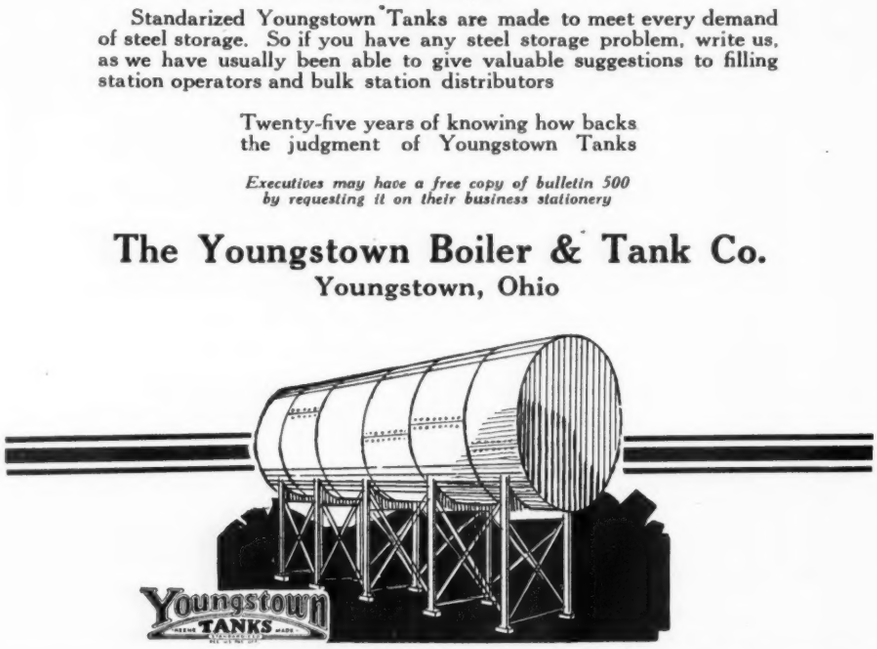
Youngstown, Ohio



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National Petroleum News

834 Caxton Building **Cleveland, Ohio**

Ranger-Eastland, 2,827,052 barrels; and Desdemona, 1,141,421 barrels.

Considered in relation to the extent of areas under development, it is apparent to the oil operator that even in its settled stage, the Breckenridge district is of considerably greater economic importance than the other divisions of the General Range territory.

Chemical Content of Limestone

The chemical composition of a limestone controls to a great extent its oil content and, consequently, the yield to be obtained from the producing horizon. In this connection, an accompanying table of limestone analyses will be found interesting and instructive. The Big Lake field limestone analysis is not complete as to details, but the silica and calcium carbonate percentages are important in a comparison with the others.

A high carbonate and low silica content, such as found in the Breckenridge gray lime, tends to "build up soft spots" that cause the formation to be identified throughout as porous. This comes about because of the action of circulating waters against a comparatively soluble formation, resulting in leaching. The action of the waters on the Edwards limestone at Luling, as heretofore mentioned, is another example.

Silica is practically insoluble under normal conditions, so that a high percentage of it in a limestone producing formation may be taken as definite evidence of lesser porosity than would be the case were a smaller percentage present.

It was found in the development of the Ranger territory that wells completed for more than 1000 barrels initial production, and which held above that level for more than 30 days, would ultimately produce 30 per cent more oil from the gray lime than similar wells from the black lime. This was accounted for in the drainage made possible over a larger area by the more channeled and creviced condition of the gray lime, these channels and crevices reflecting the action of underground waters on the limestone in leaching it out.

These conditions, in their relation to percentage chemical contents of the limestone, may be used as a background for consideration of the future of producing fields such as Big Lake. The writer knows of one appraisal of the Big Lake field's future, which is made by a widely recognized engineer and oil company manager, crediting the Reagan county limestone with a seven per cent oil content in that part of the section which is productive.

Water in Pay Horizon

Infiltration of water into the pay horizon, where it is actually present in a number of wells, is another factor to be given consideration at Big Lake. This water, which is present in small percentages, is not a production problem in the Reagan county development area

at this time; but it might easily prove of greater importance as time goes on.

Somewhat more oil would have been produced in southern Stephens county, and certainly considerable expense would have been avoided, had the operators used caution in approaching the water level of that area, 1950 feet below sea level. In a soluble lime, such as the Breckenridge gray formation, the lime will gather a head back of the casing, dissolve a small channel and finally work down to the limestone horizon.

Being solvent, a limestone of the character mentioned will be leached out and the water will penetrate into the pay horizon from above. This problem may be averted by setting casing in cement above the lime high enough to prevent the waters coming in contact with the formation sought to protect.

Big Lake Yield Estimates

Estimates vary with regard to the productive ground to be developed in the Big Lake field, but the pool is generally credited with something more than 5000 acres, all controlled by the Big Lake and Texon interests. A maximum of 7000 barrels per acre recovery has been generally used as a basis of calculation.

When estimates of productive ground in the field are extended beyond 5000 acres, it has been generally true that the men responsible for these appraisals have set up lower per acre recovery figures. Thus, it has come about that the favorite ultimate yield total has been around 35 million barrels for the field. Total production of the field to January 1, 1925, had been roundly 1,075,000 barrels.

A few of the very pessimistic have credited Big Lake with final recoveries ranging from 20 million to 25 million barrels, but the tendency of the ultra-conservative to under-estimate the worth of a field has been shown by petroleum history to counter-balance the exaggerations of the "boomer" and the promoter. This is especially true with those still afflicted by the limestone production bugaboo and they are by no means scarce. Luling is an example of their error on the side of conservatism.

CHICAGO.—F. P. Allen, former manager of the asphalt department of the Standard of Indiana, and retired on the annuity roll since last April, died Dec. 14. He was succeeded as manager by C. C. Lakin who in 1919 was the buying agent for the Standard of Indiana in Tulsa.

ST. CHARLES, ILL.—C. S. McCornack Oil Co. recently opened a four-pump service station at Geneva, Ill., reports Charles S. McCornack, proprietor. Headquarters are at St. Charles.

RANKIN, ILL.—Johnson Oil Refining Co. has installed a storage tank here for fuel oil, according to Goddard & Smith.

Boost your Gas Business With Good Air Service

TYPE 600
(shown here)
Two stage. Self-oiling. Automatic control and unloader. Filter. 40% greater inter-cooler radiating surface on all types.
TYPE 601
Same fine features as Type 600, except it is single stage.
TYPE 602
Same as Type 601, but portably mounted.
TYPE 603
Single stage compressor only, having tight and loose pulley.

Milwaukee Type 600 Compressor has oversize 16x60 Air Tanks

Your profits increase if your air service is good and reliable; remember that. A customer who goes to your hose and fails to get air, will fight shy of your station. But a customer who knows your air supply is reliable will go blocks out of his way to patronize you. Profit from these facts—get a Milwaukee Compressed Air System if you haven't one. Do not be satisfied with anything less than a Milwaukee.

Write for attractive installation proposition and bulletin.

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Air Compressors

MILWAUKEE TANK WORKS, Milwaukee

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Chicago Detroit
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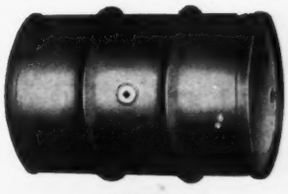
MAXIMUM QUALITY MINIMUM COST

THE AMERICAN STEEL PACKAGE COMPANY

STEEL BARRELS—STEEL DRUMS

STYLES—SIZES AND GAUGES FOR EVERY REQUIREMENT



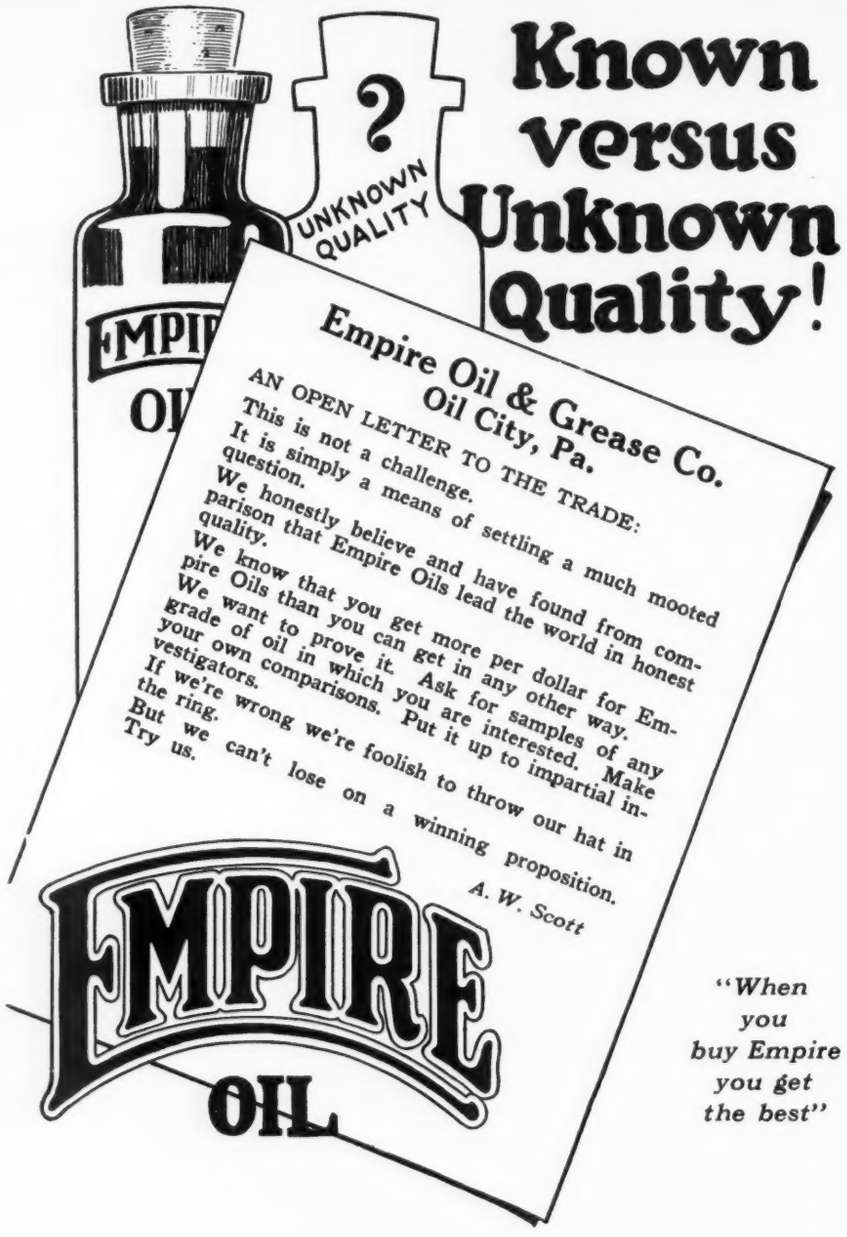
STYLES
ALL WELDED OR DOUBLE SEAMED HOOPS
ROLLED IN SHELL OR SEPARATE

SIZES
10-20-30-50-55 AND 110 GALLON

GAUGES
19-18-16-14-13 OR 12

THE AMERICAN STEEL PACKAGE COMPANY

DEFIANCE OHIO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We know that you get more per dollar for Empire Oils than you can get in any other way.
We want to prove it. Ask for samples of any grade of oil in which you are interested. Make your own comparisons. Put it up to impartial investigators.
If we're wrong we're foolish to throw our hat in the ring.
But we can't lose on a winning proposition.
Try us.
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200 formulas, modern in every particular, have been prepared in a simple, non-technical style by Forrest A. Hoff.

They are of value to the refiner, jobber, compounder, broker and lubricating engineer.

Just attach your check to this ad and return it to us now. $90 is the reasonable cost of all this valuable information. Synopsis sent upon request.

National Petroleum News
830 Caxton Building **Cleveland, Ohio**

Orient Fights to Haul Big Lake Crude

WASHINGTON, March 7.—Crude from the Big Lake and Texon field may begin moving to East St. Louis and other refining points in the north and east by rail about the middle of March. As a move in its fight with the Santa Fe and those influencing that carrier, the Kansas City, Mexico & Orient railroad has decided to publish a rate from stations on its line in Texas, stations Tankersly to Rankin, both inclusive, on the basis of 1.5 cents per 100 pounds, plus $10 per car, higher than the rate from San Angelo to East St. Louis. The object of the rate is to persuade the crude to move to the north, all-rail, instead of toward the gulf over the Orient and the Santa Fe.

The Orient was given permission by the Interstate Commerce Commission to publish the new rate on 15 days' notice instead of the 30 required by law. It wanted to publish on one day's notice but the rate body said no to that proposition. The new rate is reduction of 5 cents per 100 pounds or about 15 cents per barrel. Whether it will move any oil is something to be seen. The new rate will apply in connection with the Rock Island and the Missouri Pacific but not in connection with the Frisco or Cotton Belt.

What retaliatory move the Santa Fe can make is not known. In its application for authority to publish the reduced rate the Orient said that subsequent to the development of the oil field at Big Lake and Texon there had been a rather large movement of crude to Texas City for coastwise movement.

It is said there was now in the course of construction a pipe line from San Angelo to Pioneer and that all further shipments of crude oil were being withheld awaiting the completion of that pipe line. The Orient asserted that production had been curtailed and that the production that had not been cut off was being placed in storage. It said that what was being put into storage would not be moved until the reduced rate went into effect, hence its desire for quick action.

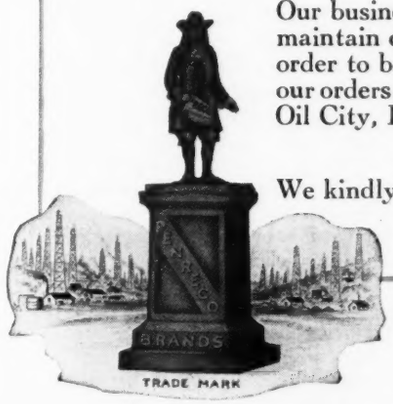
The Orient is angered on account of the treatment the Santa Fe tried to give it. According to the story told the I. C. C., the Santa Fe proposed to give the Orient a division of 4 cents out of a joint rate of 12 cents from San Angelo to Texas City, more than 425 miles. The present rates is 24 cents for delivery at Texas City, with no special rate for coastwise movement. When the Santa Fe proposed 12 cents instead of 24, the Orient induced the commission to suspend the rate. It asserted that the Santa Fe said it, the Orient, would take the 4-cent division to San Angelo or a pipe line would be built and the Orient would get nothing. The pipe line is being built but the 12-cent rate is in suspense.

Announcing Removal of
General Offices
from Oil City, Pa., to Karns City, Pa.

Since enlarging our refinery and installing the

SHARPLES PROCESS

for Making 100% Pure Pennsylvania Paraffine Base Motor Oils

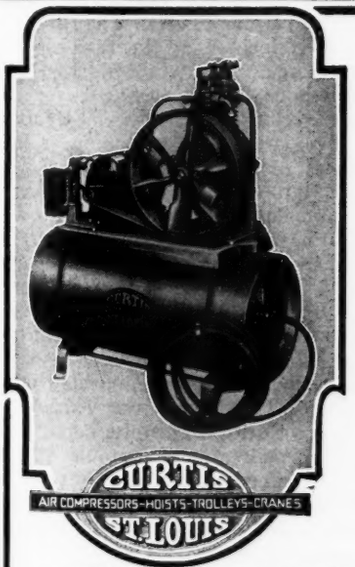


Our business has grown to such an extent that we find it impractical to maintain our general sales offices so far away from the refinery, and in order to be in closer touch with the refinery and to facilitate handling our orders and inquiries, we have decided to move our general offices from Oil City, Pa., to the refinery at Karns City, Pa.

After March 5th

We kindly ask you to address all communications to our new address. We suggest that you change your records accordingly, so that it will save delay in handling your inquiries and orders.

PENNSYLVANIA REFINING CO.
KARNS CITY, PA.

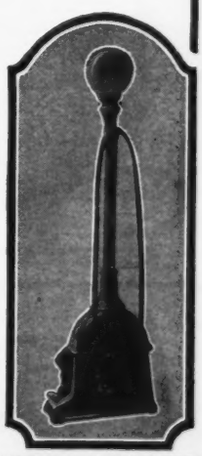


For Uninterrupted Dependable Service

Every buyer of an air compressor outfit or an air stand really expects to buy freedom from attention, maintenance time and expense. He does not want to have to nurse the product after he gets it.

CURTIS equipment is designed to answer this need. It is produced by an organization in its 71st year, with 28 years of compressor manufacturing experience, and is built like the garage man or filling station man wants it built.

The CURTIS compressor outfits start automatically against no load. They stop automatically when maximum pressure is reached or when an emergency presents itself. They will run a hundred hours or more on one filling of oil.



CURTIS PNEUMATIC MACHINERY CO.
1520 Kienlen Ave. St. Louis, U. S. A.
***Branch Office:* 530-N Hudson Terminal, New York City**

SUPERIOR CURTIS COMPRESSOR FEATURES: Controlled splash oiling system enables compressor to run longer on same amount of oil. Fan flywheel helps cool cylinders and increases efficiency. Valves light, large, inspectable. Heads removable without loosening pipe connections. Hand unloader (or centrifugal on automatic outfits) permits starting unloaded against full tank pressure. No spitting of oil when the Curtis Automatic cuts out. Curtis two-stage has copper inter-cooler, the most efficient metal for this purpose. Many other features.

CURTIS AIR AND WATER STAND— Made either column or low type, free from all complicated parts, automatic valves and the like which quickly get out of order. Present many exclusive features.

CURTIS

1854 71st ANNIVERSARY 1925

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1520 KIENLEN AVE. ST. LOUIS, MO.

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Name .....

Address .....

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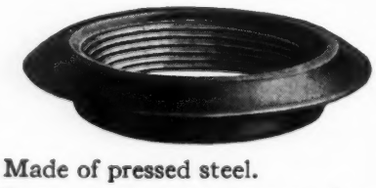
Cooperation is as much a part of

KANOTEX
Petroleum Products

as the engine is of the auto. Jobbers know their territories and their customers. We know how to make the products that please the men who buy from the men who buy from us.

A. F. MORRISON, *Sales Manager*
Phone 504 and 505

The Kanotex Refining Co.
Arkansas City, Kansas



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Made of pressed steel.
Low welding cost. Proper tolerances insure perfect fit of plugs.
Tight Seal.
Flange flush with barrel shell.

Gasket surface smooth and flat.
Made in 3/4", 1 1/2" and 2" sizes.
Standard thread as used by all barrel manufacturers.

Write us for prices.

THE BETTCHER STAMPING & MFG. COMPANY
CLEVELAND, OHIO

Northern Oil Expands; to Build Stations

DULUTH, MINN., March 5.—The entrance for the first time in Duluth of Texaco products and the opening of the newly-constructed $60,000 plant of the Northern Oil Co., distributor for the Texas Co. in this territory, was announced recently by the Northern company in a one-page newspaper advertisement, captioned "Texaco Invades Duluth."

The Northern Oil Co., which was organized in 1912 at Virginia, Minn., starting there with 10,000 gallon capacity and one pump, has expanded its jobbing business steadily until now it maintains bulk storage at Duluth, Virginia, Hibbing, Eveleth, Ely, Cook, Ray, Orr and Central Lakes, all in Minnesota. Besides this new distributing building, just completed, the company has plans for the erection of four service stations, and additional ones later on, as previously announced in National Petroleum News. Its total storage capacity is 163,000 gallons, of which 99,000 gallons are for gasoline, 30,000 gallons for high test gasoline, 15,000 gallons each for fuel oil and kerosene, and smaller tanks for lubricating oils.

The new building at Duluth is four stories high, with three stories underground and the fourth, serving as the main floor, occupied by offices of the company and the service station, which is equipped with six gasoline pumps, four motor oil pumps, rest rooms, drain pits, air and water towers. The shipping platform is located at the rear on the railroad track. The third floor serves as a warehouse for oil, having a capacity of eight carloads. The second floor is given over to storage space for small containers of lube oils and motor oils, and the first floor holds the machinery and equipment for pumps, also oil-burning heating system.

Another advertisement which appeared in a local newspaper previous to the opening of the new plant, announced that a gold-plated Gillette shaving set would be given free to each gasoline purchaser on the opening day. A stock of 1500 razors was exhausted by three o'clock in the afternoon, and names and addresses of customers after that hour were taken at the station, while a new order was sent in by wire, and distributed later to those who failed to receive their sets.

TULSA.—N. H. Breidenthal has been elected secretary of the Lion Oil & Refining Co. at El Dorado, Ark. Mr. Breidenthal was formerly head of the tax and insurance department of the White Eagle Oil & Refining Co. at Kansas City.

TULSA.—L. L. Marcell, president of the White Eagle Oil & Refining Co. with Mrs. Marcell and their daughter are taking a winter trip to Egypt and the Holy Land. They sailed from New York on Jan. 31 and expect to be gone about three months.

ON THE LAZY BENCH

Mistaken Identity

A CERTAIN story-telling Bostonian visited London one time, and a friend of his, an Englishman, asked for a short toast which he could give at a club dinner.

"Here's one for you," said the Bostonian: "Here's to the happiest days of my life, spent in the arms of another man's wife—my mother."

"Oh, s'y that's very clevah," answered the Englishman. "Now will you kindly repeat it? I have such a beastly memory."

The Bostonian repeated it.

That night the Englishman, called upon to respond to a toast, arose with much dignity. Raising his glass he started, "Here's to the happiest days of my life, spent in the arms of another man's wife—"

His memory failed him at this point, so he sat down in blushing confusion with the apology:

"Pardon me, but I've forgotten the lady's nyme."

—Doherty News

◈ ◈ ◈

Hints for Dumbells

She: "If you could only have one wish, what would it be?"

He: "It would be that—that—oh, if I only dared tell you what it would be."

She: "Well, go on. Why do you suppose I brought up the subject?"

—The Speedener

◈ ◈ ◈

Mary had a little can. It was filled with gasoline. She looked inside with a lighted match—and she hasn't benzine since.

◈ ◈ ◈

Jones (to angry wife): "Must you quarrel with me on the street? What is home for?"

—Union Oil Bulletin

◈ ◈ ◈

What About Baby?

He: "Sister Nell gave a party last night."

She: "Did you go?"

He: "Yes, everybody had to dress the color of their hair. I wore a red suit, dad wore a gray suit but grandpa almost froze to death on the back porch."

—Doherty News

◈ ◈ ◈

If life was a thing that money could buy,
The drillers would live and the toolies would die.

—Bridgeport Driller

More Hoss Fly Data

(By Geo. D. Henshaw Bristow, Okla.)

The "Hoss" Fly lit on a driller's bald head,
In the shade of a hair that was all but dead.
Dressed his bit and started to spud,
The first few screws were nothing but mud;
Then he struck something solid—probably bone.
He began to think, he should have left it alone,
When all of sudden he struck hot air;
His dreams all shattered and broke for fair.
The rig he abandoned—for nothing was there—
Beneath the shade of the lonely gray hair.

—Bridgeport Driller

◈ ◈ ◈

He Was a Bright Boy

"Yes," said the teacher, "we have several plants and flowers named with the prefix 'dog.' Of course the 'dog-rose' and the 'dog-violet' are well known to you all. Can any of you tell me others?"

For some seconds the class remained dumb. Then a bright idea illuminated the face of an urchin, and up went his hand.

"Collie flowers, Miss."

—Doherty News

◈ ◈ ◈

Dentist: "Now that didn't hurt, did it, Willie?"

Willie: "You can't fool me, my dad's an advertising man, too."

—Hawkeye Gusher

◈ ◈ ◈

This week's fairy story: Once there was an army sergeant who had a voice like a choir boy.

—Union Oil Bulletin

◈ ◈ ◈

In Her Color Scheme

"Lize, what fo' you buy dis heah otheh box o' shoeblackin'?"

"Go on, niggah," answered Lize wrathfully, "dat ain't shoeblackin'. Dat's mah massage cream!"

—Doherty News

◈ ◈ ◈

Jim—I'd offer you a cigar, but——

Joe—Never mind. I don't smoke cigar butts.

—The Booster

—just one of many styles

Warm in Winter Cool in Summer

Pruden System buildings can be perfectly insulated against heat and cold.

They are economical, strong, handsome, portable, and very quickly erected.

They are made in a wide variety of styles, sizes and prices, to suit every need.

Agents wanted

We have openings for a few good men to be our representatives.

Write for proposition.

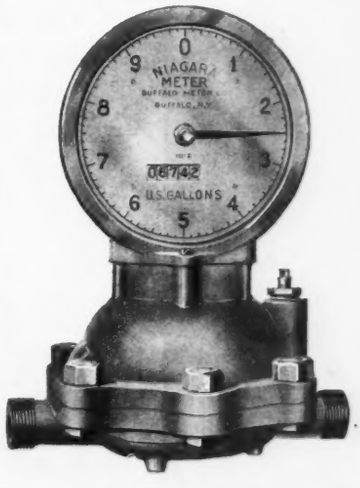
Metal Shelter Co

Wabasha & Wat.. Sts.

SAINT PAUL, MINN

NIAGARA OIL

METERS



They automatically measure and register any oil product that is pumped or that flows by gravity in a pipe or a hose. Many in use by refineries, jobbers and retailers.

Write for prices, testimonials and illustrated catalog.

BUFFALO METER CO.

Est. 1892

2889 Main St., Buffalo, N. Y.

EVERY lubricating oil marketed under the Sinclair trade-mark is made for the perfect lubrication of some particular machine.

The Sinclair Trade-mark oils are suitable for the lubrication of all machines from high speed Cotton Spindles to ponderous Rolling Mill Equipment. This trade-mark stands for the most complete satisfaction in general lubrication practice.

SINCLAIR REFINING COMPANY

New York: Sinclair Oil Building, 45 Nassau Street

Cable Address "Lucent"

SINCLAIR OILS

REFINERY-TANK WAGON MARKETS

Gasoline Inquiries Better in Group 3; Kerosene and Fuel Dull

Staff Special

TULSA, March 7

INQUIRIES for gasoline reaching Mid-Continent refiners began to increase materially during the last two days with the result that a far better tone prevades the market. Until Friday the markets were unusually quiet.

Opinion prevails that the bottom has been reached in the present reaction and that there may be a rebound in gasoline prices soon. In fact some of the cheapest U. S. Motor in the market has been absorbed and indications today are that it is impossible to buy any more of that product at 11½ cents per gallon.

Refiners are likewise expecting an improvement in the kerosene situation any time within the next week or so. Fuel and gas oils, however, are softer with the slumping off of seasonal demand and immediate prospects for improvement are not in sight.

Less Disturbance

The gasoline market has been much less disturbed by the activities of brokers than it was during the closing days of February. Few, if any, of the carload marketers have any gasoline bought ahead which must be moved immediately. Most of the February goods has been shipped or cancelled out.

Generally speaking even the larger refiners have withdrawn from their earlier efforts to hold the U. S. Motor price at 13 cents and higher. For example, one large refiner who is in no need of shipping instructions and who is not seeking business, is charging his regular customers 12½ cents per gallon on orders which they submit without solicitation.

Several days during the present week there was such a wide variation in gasoline prices that it could not be said that there was a market in Group 3. Sales were being made at from 11½ to 13 cents per gallon. The market has now settled to about 11¾ to 12¼ cents with some quotations of 12½ cents being made by stronger interests.

Several factors in the crude situation have caused refiners to go slow in offering out quotations on gasoline over the remainder of March. March 5, Marland Refining Co. advanced the prices it will pay for Mid-Continent crude from 5 to 15 cents, posting crude of 41.6 gravity and over at $2.50. This advance was met, and in two grades exceeded by the Waite Phillips Co., another Independent purchaser and refiner.

Also, it now appears that the closely watched deep tests at Bazette, Navarro County, Texas, will fail to open a new pool. These conditions, with the decrease of more than 8000 barrels in Oklahoma production last week, and a decline of approximately 12,000 barrels this week, have caused refiners to expect an early Mid-Continent crude price advance. In fact, "When will crude go up," is one of the principal topics of discussion in the market today.

Over the greater part of the week, comparatively little interest was shown in purchases of gasoline for shipment over the month, unless offered at prices considerably under the current spot market. However, on Friday several marketers were expected to close on U. S. Motor for March shipment at 12 cents, and several refiners indicated they would offer no futures at less than 12½ cents, and these only in limited quantity. The close of the market found a much more optimistic feeling among refiners and marketers than for the past two weeks.

Contract Shipment

As concrete evidence of heavy movement of gasoline during the month, one of the larger Independent refiners reported that jobbers had taken out almost 100 per cent of their requirements on gasoline contracts in February, and in a few instances shipments would have exceeded specified amounts called for had his company made the allowances requested. This company, which has offered little gasoline outside of contract material for several weeks, is also expected to enter the spot market early in April.

With a contract that calls for a differential of 5½ cents under the service station price, less freight, with the proviso that the price is to increase or decrease with the general rise or fall of tank wagon prices in the territory to which shipment is made, and further provision that he is to receive not less than the cost of manufacture, nor more than the spot market as reported by three trade journals, this refiner is receiving around 12½ cents at present on a great portion of these shipments.

(Continued on page 117)

Gasoline Still Behind Other Commodities

CLEVELAND, March 7.—Even with the increase in prices of crude oil and gasoline in January the index figures of crude and gasoline for that month as determined by the Bureau of Labor Statistics, show a smaller increase over the figures for January, 1924, than many other commodities and the price was only 1 per cent higher than the price of gasoline in 1913.

The index figure for Oklahoma crude oil was 5.3 points higher than in January, 1924, but the index for Pennsylvania crude was 9.7 points lower. The index for all commodities rose 8.8 points over the year. The Bureau's indices for the leading commodities, 100 being the average of 1913 prices, follow:

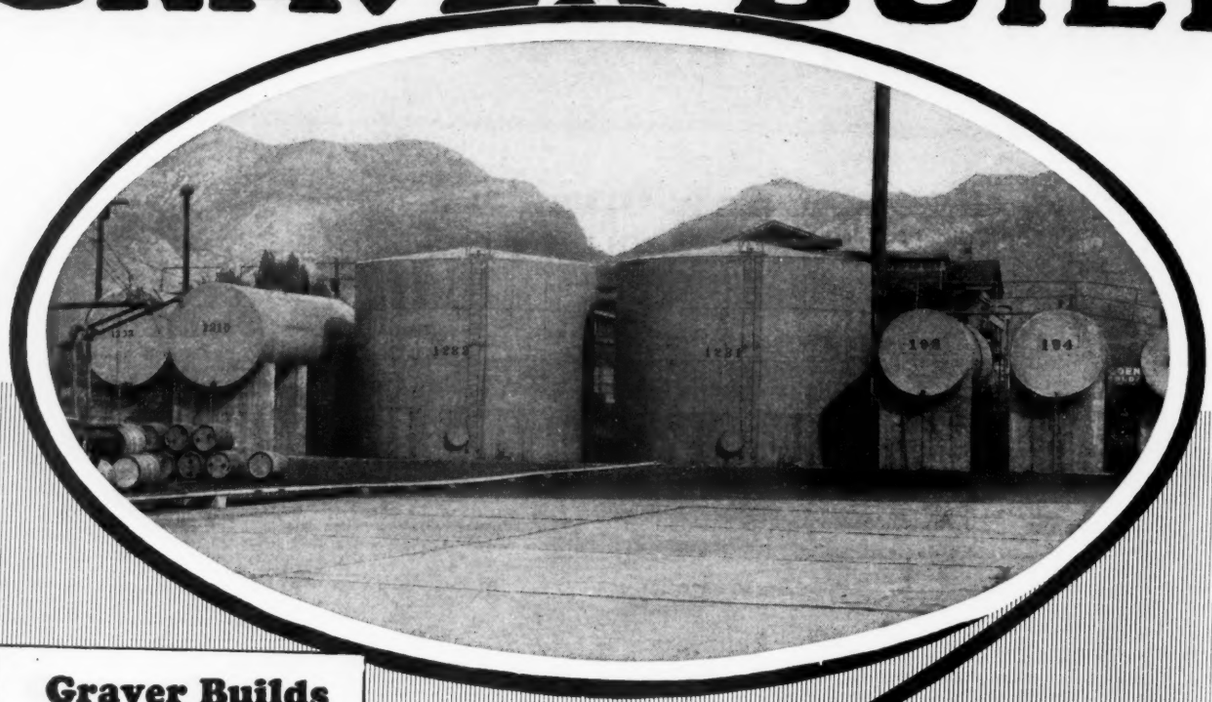
	Jan. 1925	Dec. 1924	Jan. 1924
Gasoline, New York	101.0	89.1	98.0
Crude, Oklahoma	138.4	127.9	133.1
Crude Pennsylvania	125.0	114.3	134.7
Farm products	163.4	156.7	144.4
Foods	159.8	157.9	143.2
Clothing	191.1	191.4	200.1
Fuel and lighting	167.9	164.6	168.9
Metal products	136.3	132.9	141.9
Building materials	179.3	175.1	181.0
Chemicals and drugs	135.2	134.6	131.8
House furnishings	172.6	172.6	175.8
All commodities	160.0	157.0	151.2

All prices and market information printed herein have been gathered by the staff of National Petroleum News from reliable sources and so far as can be ascertained thoroughly represent the going market as defined for each product on the date given for those particular prices. Both buyers and sellers have been checked in the gathering of this information and actual sales studied.

These prices and this information are subject at all times to correction for errors. Anyone having knowledge of any facts which would indicate anything different from the information which is given, is especially urged to send in those facts to the head office of National Petroleum News at once, or take them up with the nearest representative. All such facts will be promptly and thoroughly investigated.

The staff of National Petroleum News is cognizant of the fact that this market information has come to have a high standing in the industry. It wants to not only maintain that standing, but to improve it and to that end, invites the co-operation of the entire oil industry.

GRAVER BUILT



Graver Builds

Tanks
- *Welded*
- *Riveted*
- ~~Rivet~~
- (Riveted, Inside & Outside Welded)
- *Structural Supports*
- *Tower Tanks*
- *Standpipes*
- *Any Size Tanks*
  Erected Anywhere

Refinery Equipment

Stacks-Breechings

General Steel
Plate Construction

Water Softeners
- *Hot Process*
- *Cold Process*
- *Zeolite*
- *Household*

Filters
- *Pressure*

Purifying Systems
for **Swimming Pools**

SPRING DELAYS

Each spring is a repetition of the previous one. Shop filled with orders—steel deliveries slow—cars hard to get—everyone wanting their tanks yesterday.

This spring will no doubt be the same.

So why wait? Why not order your tanks now?

GRAVER *Corporation* *Founded 1857*

EAST CHICAGO, INDIANA

Grand Central Terminal
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CHICAGO

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TULSA

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HOUSTON

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CEDAR RAPIDS, IA.

Refinery Markets on Light Oils and Lubricants

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

GASOLINE AND NAPHTHA

	Prices Mar. 9	Prices Mar. 2	Prices Feb. 23
PENNSYLVANIA			
52-54 Naphtha	13¾-14	14 -14¼	14⅝-14¾
54-56 Naphtha	14¼-14½	-14½	14¾-15
58-60 Gasoline	14½-15	14¾-15¼	15 -15⅛
60-62 Straight-run gasoline	15½-16	16 -16⅛	16 -16⅛
62-64 Straight-run gasoline	16 -16½	16 -16⅛	16½-17
64-66 Straight-run gasoline	16½-17	16⅝-17	17 -17⅛
68-70 Straight-run gas. 350 E.P.	17 -17½	17½-18	17⅛-18
68-70 Straight-run gas. 305-320 E.P.	18½-19	19 -20	18½-19
70-72 Straight-run gas. 300-305 E.P.	-20	-20	19½-20
OKLAHOMA			
48-50 450 E. P. naphtha	11¼-11¾	11¾-12	12¼-12½
50-52 450 E. P. naphtha	11¼-11¾	11¾-12	12½-12¾
56-58 450 E. P. gasoline	11½-11¾	11¾-12	13 -13¼
58-60 U.S. Motor 437 E.P. 131 i.b.p.	11¾-12¼	12 -13	13 -13½
60-62 400 E. P. gasoline	13½-14	14 -14¼	14¾-15
64-66 375 E. P. gasoline	15 -15¼	15¼-15¾	15¾-16
68-70 350 E. P. gasoline	15 -15½	15¾-16	16½-16¾
NORTH TEXAS			
48-52 450 E. P. naphtha	11 -11⅜	11¾-12	12¼-12⅝
56-58 450 E. P. gasoline	11¼-11⅝	11¾-12	12½-12¾
58-60 450 E. P. gasoline	11½-11¾	11¾-12	12¾-13
58-60 U. S. Motor gasoline	11¾-12¼	12 -12¾	13 -13¼
60-62 400 E. P. gasoline	13¾-14	14¼-14½	14¾-15
64-66 390 E. P. gasoline	14¾-15	15 -15¼	15¾-16
64-66 375 E. P. gasoline	15 -15½	15¼-15¾	-16
68-70 350 E. P. gasoline	15¼-15½	15¾-16	16¼-16½
NORTH LOUISIANA			
58-60 450 E. P. gasoline	12¼-12½	12½-13	13 -13¼
58-60 437 U. S. Motor gasoline	12½-12¾	12¾-13¼	13¼-13½
64-66 390-400 E. P. gasoline	16 -16¼		
64-66 375 E. P. gasoline		16¼-16¾	16½-16¾
ARKANSAS			
58-60 450 E. P. gasoline	12¼-12¾	13 -13¼	13½-13¾
58-60 U. S. Motor gasoline	12½-13	13¼-13½	13¾-14
64-66 375 E. P. gasoline	15¾-16	16 -16½	16½-16¾
CALIFORNIA			
54-56 U. S. Motor gasoline	-11	-11	-11
42-45 Engine distillate, 445-480 E.P.	7½- 9½		

Note: This is without the 2-cent state tax included in the price by California refiners for shipments within the state.

NATURAL GASOLINE

OKLAHOMA			
Grade Double A	-11½	12 -12¼	-13¼
Grade A	-11½	12 -12¼	-13¼
Grade Double B	-10½	-11	-12¼
Grade B	-10½	-11	-12¼
Grade C	9¾-10	-10¼	-11¾

NOTE—Specifications adopted by Ass'n of Nat. Gaso. Manufacturers:
Grade Double A—80-87.9 gravity, 90% recovery, not over 375 E. P.
Grade A—72-79.9 gravity, 90% recovery, not over 375 E. P.
Grade Double B—84-92 gravity, 85% recovery, not over 375 E P.
Grade B—76-83.9 gravity, 85% recovery, not over 375 E. P.
Grade C—80-90 gravity, 78% recovery, not over 375 E. P.

NORTH TEXAS			
*Grade Double A	-11½	12 -12¼	13¼-13½
*Grade A	-11½	12 -12¼	13¼-13½
*Grade Double B	-10½	-11	-12¼
*Grade B	-10½	-11	-12¼
Grade C	9¾-10	-10¼	-11¾

*F. O. B. Breckenridge.

CALIFORNIA			
73-78 375 E. P.	13 -13½	-13½	-14
OKLAHOMA NATURAL GASOLINE—BLENDS			
64-66 435-440 E. P.	11½-11¾	-12¼	13¼-13½
NORTH TEXAS			
64-66 435-440 E. P.	11½-11¾	11¾-12	-13¼
PENNSYLVANIA			
68-70 Grav. 437 E. P.	14½-15	14¾-15	15 -15⅛
64-66 Grav. 437 E. P.	14½-15	14¾-15	15 -15⅛
60-62 Grav. 437 E. P.	14½-15	14¾-15	14½-15
68-70 Grav. 420 E. P.	15½-16	15½-16	15½-16
68-70 Grav. 400 E. P.	16½-17	16¾-17	16¼-16¾

BURNING OILS

PENNSYLVANIA			
45 Water White Kerosene	7⅛- 7¼	7¼- 7⅛	7¼- 7⅜
46 Water White Kerosene	7½- 7¾	7¾- 8	7¾- 8
47 Water White Kerosene	8¼- 8½	8¼- 8½	8¼- 8½
300 Burning Oil	8 - 8¼	8 - 8¼	8¼- 8¾
OKLAHOMA			
40-42 Prime White Distillate	4½- 4¾	4½- 4¾	4½- 4¾
41-43 Water White Kerosene	4⅝- 4⅞	4¾- 5	- 5
42-44 Water White Kerosene	4⅞- 5⅛	5 - 5¼	- 5¼
NORTH TEXAS			
41-43 Water White Kerosene	4⅝- 4⅞	4¾- 5	4⅞- 5
42-44 Water White Kerosene	4⅞- 5	4⅞- 5⅛	5⅛- 5¼
NORTH LOUISIANA			
41-43 Water White Kerosene	5½- 5¾	5½- 6	5¾- 6
ARKANSAS			
41-43 Water White Kerosene	5¼- 5½	5¼- 5½	5¾- 6
42-44 Water White Kerosene	5½- 5¾	5½- 5¾	6 - 6¼
CALIFORNIA			
40-42 Water White Kerosene	7½- 8	7½- 8	7½ - 8

NEUTRAL OILS

PENNSYLVANIA	Prices Mar. 9	Prices Mar. 2	Prices Feb. 23
(Viscosity at 70°F.)			
220 Vis. No. 3 Assoc. Filt.	28½-29	-28½	28½-29
200 Vis. No. 3 Assoc. Filt.	-26	-26	26 -26⅛
180 Vis. No. 3 Assoc. Filt.	-24	-24	24 -24⅛
150 Vis. No. 3 Assoc. Filt.	-22	-22	22 -22⅛
(Non-Viscous)			
34 Grav. 350-360 Flash	8½- 8¾	8½- 8¾	- 8⅛
36 Miners Neutrals 300-305 Flash	7¾- 8	7¾- 8	7½- 8
OKLAHOMA			
(Viscosity at 100°F.)			
70 Vis. No. 2½-3 color	8 - 8½	8 - 8½	7 - 7½
100 Vis. No. 2 color	8¾- 9	8¾- 9	8½- 9
100 Vis. No. 2½-3 color	8 - 8½	8 - 8½	8 - 8½
150 Vis. No. 3 color	10¾-11	10¾-11	9¾-10
150 Vis. No. 4 color	10½-10¾	10½-10¾	9½- 9¾
180 Vis. No. 3 color	11¼-11½	11¼-11½	10½-10¾
180 Vis. No. 4 color	11 -11¼	11 -11¼	10¼-10½
180 Vis. No. 5 color	10 -11	10 -11	10 -10¼
200 Vis. No. 3 color	12¼-12½	12¼-12½	12 -12¼
200 Vis. No. 4 color	12 -12¼	12 -12¼	11¾-12
200 Vis. No. 5 color	11 -12	11 -12	11½-11¾
220 Vis. No. 3 color	14¾-15	14½-15	14¼-14⅝
220 Vis. No. 4 color	14¼-14½	14¼-14½	13¾-14
220 Vis. No. 5 color	13 -14	13 -14	13¼-13½
240 Vis. No. 3 color	16¼-16½	16¼-16⅜	15¾-16
240 Vis. No. 4 color	15¾-16	15¾-16	15¼-15⅝
240 Vis. No. 5 color	15 -15½	15 -15⅜	14¾-15
280 Vis. No. 3 color	17¾-18	17¾-18	18¾-19
280 Vis. No. 4 color	16¾-17	16¾-17	17¾-18
280 Vis. No. 5 color	15¾-16	15¾-16	16¾-17
300 Vis. No. 5-6 color	19¼-19½	19¼-19⅜	18¾-19
GULF COASTAL			
(Viscosity at 100°F: cold test 0)			
100 Vis. No. 2 Color Unfilt. Pale	10 -10½	10 -10⅜	10 -10⅜
200 Vis. No. 3 Color Unfilt. Pale	15 -15½	15 -15⅜	14½-15
300 Vis. No. 3 Color Unfilt. Pale	17 -18	17 -18	17 -18
500 Vis. No. 3½ Color Unfilt. Pale	19 -20	19 -20	19 -20
750 Vis. No. 4 Color Unfilt. Pale	24 -24½	24 -24⅜	24 -24⅜
200 Vis. No. 5½ Color Red Oil	13 -13½	13 -13⅜	13 -13⅓
300 Vis. No. 5½ Color Red Oil	15 -15½	15 -15⅜	15 -15⅓
500 Vis. No. 6 Color Red Oil	16½-17	16¾-17	17 -17⅓
750 Vis. No. 6 Color Red Oil	22 -22½	22 -22⅜	22 -22⅓
CALIFORNIA			
(Viscosity at 100°F.)			
100 Vis. No. 2 color	13½-14½	13½-14½	13½-14½
100 Vis. No. 3 color	9 -10	9 -10	9 -10
200 Vis. No. 3 color	14½-15½	14½-15½	14½-15½
300 Vis. No. 3 color	14 -16	14 -16	14 -16
450 Vis. No. 3½ color	19½-20½	19½-20½	19½-20½
550 Vis. No. 3 color	21½-22½	21½-22½	21½-22½
600 Vis. No. 3½ color	23½-24½	23½-24½	23½-24½
100 Vis. No. 5 color	8 - 9	8 - 9	8 - 9
200 Vis. No. 5 color	13½-14½	13½-14½	13½-14½
300 Vis. No. 5 color	14 -15	14 -15	14 -15
400 Vis. No. 5 color	16 -17	16 -17	16 -17
500 Vis. No. 5 color	17 -18	17 -18	17 -18
600 Vis. No. 6 color	18 -19	18 -19	18 -19
700 Vis. No. 7 color	19½-20½	19½-20½	19½-20½

CYLINDER STOCKS

OKLAHOMA			
190-200 Vis. at 210° Bright Stock	31 -36	31 -36	31 -36
150-160 Vis. at 210° Bright Stock	28 -32	28 -32	28 -32
Medium Filtered Stock	18½-24	18½-24	17½-18½
600 Steam Refined Olive Green	11 -12½	11 -12½	10 -11
600 Steam Refined Dark Green	9½-10	9½-10	9 -10
Black Oil	5¼- 5½	5¼- 5½	5¼- 5½
PENNSYLVANIA			
(1-inch Immersion Test)			
600 Steam Refined	22½-23	23 -23½	22½-23½
635 Steam Refined	27½-28½	28½-29½	28½-29½
650 Steam Refined	29½-30½	30 -30½	30½-31½
600 Flash	32½-33½	33 -34	33 -34
600 Warren E	-26	26 -26½	26½-27
600 Oil City E	-25	24 -25	25 -26
600 Filtered D	30 -30½	30½-31	31 -31½
Cold Test Stocks (bright filtered)	39 -40	40 -40½	40 -40½
Cold Test Stock (dark filtered)	37 -38	37 -38	37 -38
Black Oil	- 8	- 8	- 8

(Note—Prices of total immersion test goods average 1 to 2 cents per gallon higher.)

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

WELDCO TRUCK TANKS—

One of the most complete styles of truck tanks—with emergency valve, multiple control, five compartments, 1500 gal. capacity, rack space for 25 cans—mounted on a five ton White Chassis.

Drains dry— —to the last drop!

Each compartment of a Weldco Truck Tank drains dry to the last drop. They cannot pocket oil. They cannot collect dirt. The Funnel shaped drain won't let them. For gravity forces every last drop to flow down the funnel and out of the tank.

WELDCO TRUCK TANKS
DRAINS LIKE A FUNNEL
TRADE MARK REG US PAT OFF.

The last word in truck tanks. Every engineering feature tested by years of actual performance—every tank has been subjected to the most rigorous inspection—and every satisfaction guaranteed the user.

Quickens delivery time by emptying the load more rapidly. Prevents arguments about short measure. And creates good will, as it convinces the operator that he is receiving all that is coming to him.

If it's a Weldco—it must be right.

Showing the enclosed can racks of this Weldco Truck Tank.

Send for our free catalog, "What To Consider When Buying A Truck Tank". It tells the entire story.

The Youngstown Welding Co.

(Welders Since 1912)

Youngstown, Ohio, U.S.A.

Refinery Markets on Wax and Heavy Oil Products

Pennsylvania, Oklahoma, North and South Texas, Louisiana, Arkansas, California

WAX

PENNSYLVANIA	Prices Mar. 9	Prices Mar. 2	Prices Feb. 23
	(Per Pound New York)		
122-124 White Crude Scale	5¼- 5⅜	5⅜- 5⅝	5⅜- 5¾
124-126 White Crude Scale	5⅜- 5⅝	5¾- 5⅞	- 5⅞
OKLAHOMA			
	(Per Pound Group 3)		
124-126 White Crude Scale	5 - 5¼	5 - 5¼	5¼- 5⅜
CALIFORNIA			
White Crude Scale	7½- 8	7½- 8	7½- 8

FUEL OIL

PENNSYLVANIA			
36-40 Fuel Oil	6½- 7	6¾- 7	6¾- 7
30-34 Fuel Oil	6 - 6¼	6⅛- 6¼	6⅛- 6⅜
OKLAHOMA			
38-40 Straw distillate	3¾- 3⅞	3¾- 4	3⅞- 4
36-38 Straw distillate	- 3⅝	- 3¾	- 3⅞
32-36 Gas oil	- 3¼	- 3⅝	- 3¾
26-30 Fuel oil (Bbl.)	1.22½-1.25	1.27½-1.30	-1.35
24-26 Fuel oil (Bbl.)	1.17½-1.22½	1.22½-1.25	1.30 -1.35
24-26 Fuel oil (Buyers' cars)	1.17½-1.22½	1.22½-1.25	1.30 -1.32½
20-22 Fuel oil (Bbl.)	1.15½-1.17½	1.20 -1.22½	1.27½-1.30

NORTH TEXAS	Prices Mar. 9	Prices Mar. 2	Prices Feb. 23
36-40 Straw Distillate	3¾- 3⅞	3¾- 4	3⅞- 4
32-36 Gas Oil (Gal.)	3½- 3¾	3⅝- 3¾	3¾- 3⅞
24-26 Fuel, per bbl	1.30-1.40	1.35-1.40	1.35-1.45
GULF COASTAL			
Fuel	2.10-2.15	2.10-2.15	1.90-2.00
Gas Oil	5½- 5¾	5½- 5¾	5 - 5¼
NORTH LOUISIANA			
32-36 Gas Oil (Gal.)	3¾- 4	- 4	- 4
20-24 Fuel Oil (Bbl.)	1.20-1.30	1.25-1.30	1.30-1.35
ARKANSAS			
38-40 Distillate	4¼- 4½	4¼- 4½	4¼- 4½
32-36 Gas Oil	4 - 4¼	4 - 4¼	4 - 4¼
20-24 Refinery Fuel Oil (Bbl.)	1.30-1.35	1.30-1.35	1.30-1.35
Smackover Crude Fuel (Bbl.)	-1.20	-1.25	1.25-1.30
East Field Crude Fuel (Bbl.)	-1.20	-1.25	1.25-1.30
CALIFORNIA*			
14-18 Fuel Oil (Bbl.)	1.60	1.60	1.60
14-18 Bunker Oil (Bbl.)	1.60	1.60	1.60
24-30 Gas Oil (Bbl.)	1.85	1.85	1.85
27 + Diesel Oil (Bbl.)	1.85	1.85	1.85

*Prices at southern California points. Prices at San Francisco 5c per bbl higher.

Above prices are f. o. b. refinery in tank car. They are the prices at which the bulk of the products on the open market move. Whoever has knowledge of any open market prices on any considerable quantity of goods differing from the foregoing, will favor us with this information.

(Continued from page 113)

While contracts made by Standard Oil Co. of New Jersey covering 64-66, 375 end point gasoline will take a large amount of this material from the field during the next few months, comparatively little new business on the part of exporters was transacted during the week. Some sales of this grade were said to have been made at from 15 to 15¼ cents, but several refiners indicated they were holding their goods at around 15½ cents. Export grade of U.S.Motor could no doubt have been purchased in sizeable quantities at around 12 cents.

Statistical Position Good

A review of the weekly reports for a four week's period ended Feb. 27, of 120 Mid-Continent refiners as gathered by National Petroleum News, shows that in spite of the smaller amount of new business written during the last two weeks, stocks of gasoline, kerosene and gas and fuel oil in the Mid-Continent can be considered as having maintained a healthy condition. This is particularly true when the relation of shipments to production at these plants is considered.

With a production of 113,232,698 gallons of gasoline during the four weeks against shipments totaling 107,999,590 gallons, the ratio of sales to production stood at 95.4 per cent, with an increase in stocks of only 5,233,108 gallons. In so far as statistics go, it is hardly to be hoped that a much better record could have been chalked up, particularly in view of the fact that what increase in stocks has been made, has come at a time closer to actual spring demand than in certain years past.

Kerosene production at these plants was reported at 5,748,377 gallons, and shipments at 24,573,267 gallons, with an increase in stocks of only 1,175,110 gallons. Strangely enough, the ratio of sales to production was the same as for gasoline. Gas and fuel oil production was 146,592,007 gallons, with shipments of 144,502,699 gallons allowing an addition to stocks of 2,089,308 gallons. Shipments were 98.6 per cent of production during the four weeks.

Premium Goods Slow

High gravity gasolines were inactive The general minimum price for 64-66 375 end point gasoline for domestic consumption appeared to be 15 cents, with some offerings made at 14¾ cents to marketers for resale to the jobbing trade on prompt shipment. One refiner stated he had sold none of this grade below 15½ cents, nor any of the 60-62, 400 end point grade below 14¼ cents. Scattered distress offerings of the 60-62 were heard as low as 13¼ cents, but the trade generally was being quoted from 13½ to 14 cents.

Natural gasoline was sluggish and poor demand caused considerable material to back up at several plants with a consequent weakening in prices. Most trades were approximately ½ cent cheaper than on Monday. In one instance one manufacturer offered Grade C at 9½ cents for prompt shipment to prevent further accumulations but no great amount of material appeared below 9¾ cents. Many manufacturers quoted at 10 cents Saturday.

Asking prices on Grade A were around 12 to 12¼ cents Monday, but at the end of the week were around 11½ cents. Interest in future markets was also lacking, and refiners and others who are large users of naturals indicated that better movement of their own products must be realized before their demand for natural gasoline can be expected to increase. However, a crude price advance is expected to bring about quick revival in demand with better prices.

Kerosene demand, for both spot and future shipment, has not been up to the expectation of refiners. With the season of greater consumption practically at hand, it was felt that jobbers would show more interest in this market for March shipment. The 41-43 water white grade has been offered for resale in some cases as low at 4⅝ cents for prompt or reasonably prompt shipment, and quotations are being generally offered to the trade at from 4¾ to 5 cents. Water white kerosene of 42-44 gravity was generally quoted at from 5 to 5¼ cents, although some refiners were asking 5½ cents.

Gas oil was more freely offered at 3½ cents for either prompt or March shipment with the general range of quotations from 3½ to 3⅝ cents. Prices of 3¾ cents were heard for 38-40 straw distillate, but with exception of an occasional car, no activity was reported. All grades of fuel oil were softer. While one refiner is receiving $1.30 for 18-22 gravity fuel which he sold for March delivery late in February, some offerings of this grade were made at $1.15 during the week, and 24-26 gravity fuel was more easily available at $1.20.

Refiners reported good business in lubricating oils, and buyers continued active in laying in supplies for spring requirements. Prices were firm and unchanged. Wax is quiet at from 5 to 5¼ cents. However, one refiner asked for bids on several hundred tons for March shipment and received offers of 5 cents and finally closed out the lot at around 5⅓ cents.

BALLSTON SPA, N. Y.—Thomas Oil Co., distributor of Quaker State oils and benzol in Saratoga county, has just opened a modern service station here, known as Thomas' Gasoline Garden. it is equipped with six pumps, four air and water standards, two grease and oil racks rest rooms and has storage capacity of 42,000 gallons, according to J. V. Thomas, proprietor.

All Products Dull at Chicago; Improvement Expected Soon

Staff Special

CHICAGO, March 7

DEMAND has been slack and trading dull in the Chicago market all this week. Jobbers are not buying, and but a few distress offers from refiners, showing that their storage is in need of relief, is the most bearish information in the trade. The prevailing quotation is 11½ to 11¾ cents a gallon but even at the low price but little business has been done. It is the belief that jobbers in this territory have some vacant space in their tanks for occasionally one of them makes an offer for a specific amount of material at 11 to 11¼ cents, showing what he believes he will buy before the present dullness is passed.

Some refiners are still hopeful of a market revival in a few days and are not allowing their jobber customers to hammer down the price. Several are still quoting 12 cents a gallon and better for U. S. Motor gasoline, which is above the present market. Speculators are of the opinion that the weather man holds the balance of power to make or break the gasoline market for this spring. If this be correct the forecast for wet weather next week is sad news to the refiners.

Kerosene has followed gasoline a little way down the price scale. The quotation most heard is 4¾ to 5 cents but 5 cents is more of a "first asking price" on 42-44 than a figure at which business is done. Only the premium grades of kerosene, well advertised brands of special quality in demand for incubators, is likely to sell for 5 cents now, and 4¾ cents will buy almost any car of ordinary burning oil.

Gasoline and kerosene markets both are waiting on the weather. Large marketing agencies having their own stations throughout the middle west report that gasoline gallonage in February was larger than February, 1923, which is naturally to be expected because February, 1923, was one of the worsts months of the winter. But last month produced less business than January.

That comparison tells a story that is important. Weather was fair and cold and there was not much snow on the ground in January. Furthermore the ground was frozen hard. Motoring kept up all through the month and retail sales broke January records for many jobbing companies. The warm days of February did not help motoring at all. In fact in some parts of the territory it had a tendency to do harm by melting ice and making roads muddy. That will not be overcome until roads are dry which will take several more days of wind and sunshine.

Oils that may be used as domestic fuel, have been soft lately. The weather has been mild and consumers are probably not burning half the material now that they did when the weather was close to zero. Stove distillate is quoted freely at 3¾ to 4 cents and gas oil between 3½ and 3¾. Both are slow.

Fuel oil demand has been fairly steady and offerings have increased over the week. The prevailing quotation is $1.20 to $1.25 a barrel for 24-26 refinery product, and $1.20 for Smackover.

V. M. AND P. NAPHTHA
(Changes ordinarily occur coincident with gasoline)

Mar. 9	V.M.& P. Naphtha	Oleum Spirits
Chicago	21	19
Detroit	22.7	20.2
Milwaukee	21.7	19.2
Minneapolis	23	20.5
St. Louis	20.9	18.4
New York	20½	....
Cleveland	19	....

New England Refinery Prices

(F. O. B. Boston and Fall River)

	Mar. 9	Mar. 2
U.S.Motor gasoline (gal.)	15¾	15¾
30-32 gas oil (gal.)	6⅛	6⅛
40-43 w. w. kerosene	7½	7⅝
Fuel Oil (Bunker C) bbl	2.05	2.05

Pennsylvania Markets are Quiet; Most Prices are Lower

CLEVELAND, March 9.—Pennsylvania markets have been unusually quiet during the last week. With the exception of neutral oils, prices of all products have slipped.

Refiners are still working on accumulated orders for both cylinder stocks and neutrals, some being sold up for two months ahead on these oils. Consequently they are not worrying when the influx of new orders may undergo a lull.

Inquiries for gasoline increased considerably late last week when territory usually served by Pennsylvania refiners had a few days of fair and warm weather. However, a great amount of motor fuel business did not develop.

Refiners are generally in pretty good position as regards motor fuel. They were unable to accumulate any stock until late in the winter and with spring demand only a few weeks off, they are not in danger of being forced to dump gasoline on the market at distress prices.

Kerosene has weakened due to the larger accumulations and slack demand, although several refiners continue to report they are moving burning oils as fast as they turn them out. Fuel has been easy with 36-40 red selling at 6½ to 6¾ cents and the 36-40 straw at 6¾ to 7 cents.

Wax has been quiet, with buyers' and refiners' ideas varying considerably. Most refiners are holding their wax for higher prices than those prevailing and are quoting ¼ cent per pound more than what appears to be the going price and which appears to be the only price at which any wax has been sold at spot recently. One refiner said last week he would hold his wax until it started to get dirty before he would sacrifice it at present offerings.

Crude is still not as free as it might be. Many producers believe that by holding off a little longer that they might force the price to $4 per barrel at the well. The lines and tanks of the National Transit Co. are almost full, according to President Williams and an embargo such as was enforced for a week in December, is imminent. He said his company had been shifting oil about to try to care for the producers but that they were unable to forestall another embargo much longer.

Some observers believe that an embargo would delay the $4 price for crude but with higher prices being offered for Mid-Continent crude by Independent buyers and the Prairie and Sinclair likely to advance their posted prices, another general upward revision for crude probably would give the Pennsylvania producers their hoped for price.

Kentucky

Central Kentucky gasoline is ¾ to 1½ cents per gallon cheaper than a week ago. Fuel oil is ⅝ cents cheaper but kerosene and gas oil are unchanged. Quotations in central Kentucky today were: 58-60 gasoline, 14¼ cents; 60-62, 15¼; 64-66, 16¾ and 68-70, 17½; 42-44 kerosene, 7½; 34-38 gas oil, 5½, and 24-26 fuel oil, 4⅜ cents.

Benzol Prices Advanced

NEW YORK, March 9.—Benzol stiffened considerably towards the end of last week. Leading distributors advanced the price 1 cent a gallon, and all indications point toward a more substantial increase in the price in the near future.

Production is fairly large but consumption is soaring as the big blenders of motor fuel are in the market for large supplies over the next few months. Steel production is expected to break all records soon, but nevertheless prices are expected to stiffen as consumption appears to be gaining more rapidly than production.

Stocks of benzol available for immediate delivery are rather small and distributors are reluctant to offer beyond nearby deliveries, as they find all they can do in taking care of current orders.

	Mar. 9	Mar. 2
Pure, tank cars, works	23-24	22-23
90%, tank cars, works	22	21

Above are industrial grades of benzol; motor grades run 2 cents under to 2 cents over gasoline tank wagon prices at point of delivery.

Tank Wagon, Service Station Markets for Gasoline and Kerosene
in United States Territories and Canada

BELOW are given in cents a gallon, the tank wagon price of gasoline without the special taxes levied against motor fuels by many states, the amount of the state taxes, the total tank wagon price, with tax added in and the service station or retail price of gasoline as quoted by the Standard Oil Companies in their various marketing territories. The right hand column is the tank wagon price of kerosene. By tank wagon price is meant the price to resale agents or dealers. Usually this price does not apply to sales to consumers from tank wagons.

These prices in Effect March 9, 1925

S. O. NEW JERSEY TERRITORY

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Atlantic City, N. J.	19	0	19	*	13
Newark, N. J.	19	0	19	21	13
Annapolis, Md.	20	2	22	*	12
Baltimore, Md.	19	2	21	23	11
Cumberland, Md.	20	2	22	24	12.5
Washington, D. C.	19	2	21	23	12.5
Danville, Va.	20	3	23	*	13.5
Norfolk, Va.	20	3	23	25	13.5
Richmond, Va.	20	3	23	25	13.5
Roanoke, Va.	20	3	23	25	13.5
Petersburg, Va.	20	3	23	*	13.5
Charleston, W. Va.	18	2	20	22	13.5
Clarksburg, W. Va.	19	2	21	23	13.5
Keyser, W. Va.	19	2	21	*	13.5
Parkersburg, W. Va.	18	2	20	22	13.5
Wheeling, W. Va.	18	2	20	22	13.5
Williamsburg, W. Va.	19	2	21	*	13.5
Charlotte, N. C.	20	4	24	26	14.5
Hickory, N. C.	20	4	24	*	14.5
High Point, N. C.	20	4	24	*	14.5
Mt. Airy, N. C.	20	4	24	*	14.5
Salisbury, N. C.	20	4	24	*	14.5
Charleston, S. C.	20	3	23	25	15
Columbia, S. C.	20	3	23	25	15

*Dealers set own prices. S. O. New Jersey does not operate station.

S. O. NEW YORK TERRITORY

*New York City	21	0	21	23	13
Albany, N. Y.	21	0	21	23	13
Buffalo, N. Y.	21	0	21	24	13
Rochester, N. Y.	†21	0	†21	†25	13
Syracuse, N. Y.	21	0	21	23	12
Boston, Mass.	21	0	21	25	11
Augusta, Me.	21	1	22	25.5	13
Manchester, N. H.	21	2	23	26.5	13
Burlington, Vt.	21	2	23	26.5	13

*In steel barrels.

†At Rochester only, as far as is known, Standard sells two grades of gasoline, the above price applying to its Socony grade, and another grade being sold 2c below this price.

ATLANTIC REFINING TERRITORY

Pittsburgh, Pa.	19	0	19	*24	14
Philadelphia, Pa.	19	0	19	*24	14
Allentown, Pa.	19	0	19	*24	14
Erie, Pa.	19	0	19	*24	14
Scranton, Pa.	19	0	19	*24	14
Altoona, Pa.	19	0	19	*24	14
Dover, Del.	19	2	21	24	14
Wilmington, Del.	19	2	21	24	14
Providence, R. I.	21	0	21	25	13
Springfield, Mass.	21	0	21	25	13
Worcester, Mass.	21	0	21	25	13
Hartford, Conn.	21	1	22	26	12
New Haven, Conn.	21	1	22	26	13
Boston, Mass.	21	0	21	25	11

*Contains 2-cent tax collected by retail dealer and paid by him directly to state.

S. O. KENTUCKY TERRITORY

Lexington, Ky.	19	3	22	25	14
Louisville, Ky.	19	3	22	24	12
Covington, Ky.	17	3	20	23	14
Clarksdale, Miss.	19	3	22	25	12
Jackson, Miss.	19	3	22	25	10
Natchez, Miss.	18.5	3	21.5	24.5	11.5
Vicksburg, Miss.	18.5	3	21.5	24.5	11.5
Birmingham, Ala.	20	2	22	25	14.5
Mobile, Ala.	19	2	21	24	12.5
Montgomery, Ala*	21	2	23	26	15.5
Atlanta, Ga.	21	3	24	27	13
Augusta, Ga.	21	3	24	27	13.5
Macon, Ga.	21	3	24	27	14.5
Savannah, Ga.	19	3	22	25	13
Jacksonville, Fla.	19	3	22	25	13
Miami, Fla.	21	3	24	27	14.5
Tampa, Fla.	19	3	22	25	13
Pensacola, Fla.	19	3	22	25	13.5

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosene at Montgomery included.

S. O. OHIO TERRITORY

	Gasoline T.W	Tax	Total	S.S.	Oil T.W.
All Ohio points	18.5	0	18.5	20.5	15

S. O. INDIANA TERRITORY

Chicago, Ill.	†19	0	†19	21	12
Decatur, Ill.	18.2	0	18.2	20.2	12.5
E. St. Louis, Ill.	17.1	0	17.1	19.35	11.6
Joliet, Ill.	18.4	0	18.4	20.4	12.7
Peoria, Ill.	18	0	18	20	12.5
Quincy, Ill.	18.2	0	18.2	20.2	12.3
Indianapolis, Ind.	18.2	2	20.2	22.2	12.7
Evansville, Ind.	18	2	20	22	12.5
South Bend, Ind.	18.4	2	20.4	22.4	12.9
Detroit, Mich.	18.8	2	20.8	22.8	13.2
Grand Rapids, Mich.	18.7	2	20.7	22.7	13.1
Saginaw, Mich.	18.9	2	20.9	22.9	13.3
Madison, Wis.	18.3	0	18.3	20.3	12.5
Milwaukee, Wis.	18.1	0	18.1	20.1	12.3
La Crosse, Wis.	19.2	0	19.2	21.2	13.4
Minneapolis, Minn.	19.2	0	19.2	21.2	13.6
Duluth, Minn.	19.5	0	19.5	21.5	13.6
Mankato, Minn.	19.1	0	19.1	21.1	13.4
Des Moines, Iowa.	18.5	0	18.5	20.5	12.9
Davenport, Iowa.	18.5	0	18.5	20.5	12.9
Sioux City, Iowa.	18	0	18	20	12.5
Mason City, Ia.	18.5	0	18.5	20.5	12.9
St. Louis, Mo.	**17.6	2	19.6	21.9	12
Kansas City, Mo.	††18.9	2	20.9	22.9	11.3
St. Joseph, Mo.	**18	2	20	22	11.9
Fargo, N. D.	19.9	1	20.9	22.9	15.6
Grand Forks, N. D.	20.1	1	21.1	23.1	15.9
Minot, N. D.	20.9	1	21.9	23.9	15.6
Pierre, S. D.	20	2	22	*	14.1
Huron, S. D.	20	2	22	24	14.1
Wichita, Kans.	17.8	0	17.8	19.8	10.8
Bartlesville, Okla.	16.9	2½	19.4	21.4	10.9

†Dumps of 100 or more gallons at 18c per gallon.
*S. O. Indiana does not operate station
**Includes city tax of ½c.
††Includes city tax of 1c.

S. O. NEBRASKA TERRITORY

Crawford, Neb.	19	0	19	*	13.25
Omaha, Neb.	16	0	16	18	12.5
McCook	19.75	0	19.75	21.75	14
Norfolk	18.75	0	18.75	20.75	13
North Platte	19.75	0	19.75	21.75	13.75
Scotts Bluff	19.25	0	19.25	21.25	13.25

*Standard has no service station here.

CONTINENTAL OIL TERRITORY

Denver, Colo.	19	2	21	23	14.5
Pueblo, Colo.	19	2	21	23	14.5
Casper, Wyo.	19	2½	21.5	23.5	13
Cheyenne, Wyo.	20.5	2½	23	25	14.5
Butte, Mont.	20	2	22	24	16
Helena, Mont.	22	2	24	26	17
Salt Lake City, Utah	20.5	2½	23	25	18
Boise, Ida.	21.5	2	23.5	25.5	20
Albuquerque, N. M.	23.5	1	24.5	27.5	16.5

S. O. CALIFORNIA TERRITORY

Phoenix, Ariz.	20	3	23	26	21.5
Los Angeles, Cal.	13.5	2	15.5	18.5	15.5
Fresno, Cal.	15.5	2	17.5	20.5	17.5
San Francisco, Cal.	15	2	17	20	15.5
Reno, Nev.	18.5	2	20.5	23.5	19
Portland, Ore.	15	3	18	21	16.5
Seattle, Wash.	15	2	17	20	16.5
Spokane, Wash.	19	2	21	24	20.5
Tacoma, Wash.	15	2	17	20	16.5

S. O. LOUISIANA TERRITORY

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Camden, Ark.	19	4	23	25	13
Little Rock, Ark.	19	4	23	25	11
West Helena, Ark.	19	4	23	25	12
Alexandria, La.	18.5	2	20.5	22.5	13
Baton Rouge, La.	17	2	19	21	11.5
Lake Charles, La.	18.5	2	20.5	22.5	13
New Orleans, La.	18.5	2	20.5	22.5	11
Shreveport, La.	18.5	2	20.5	22.5	13
Bristol, Tenn.	21	3	24	25	13.5
Chattanooga, Tenn.	19.5	3	22.5	24.5	14.5
Knoxville, Tenn.	20.5	3	23.5	25.5	15
Nashville, Tenn.	19.5	3	22.5	24.5	13.5
Memphis, Tenn.	18	3	21	23	14

MAGNOLIA PETROLEUM TERRITORY

Muskogee, Okla.	17.5	2½	20	23	12
Oklahoma City	17.5	2½	20	23	12
Tulsa, Okla.	17.5	2½	20	23	11
Fort Smith, Ark.	17.5	4	21.5	24.5	12
Little Rock, Ark.	19	4	23	25	11
Texarkana, Ark.	18	4	22	25	12
Dallas, Tex.	16	1	17	21	12
El Paso, Tex.	18	1	19	22	13
Fort Worth, Tex.	16	1	17	21	12
Houston, Tex.	16	1	17	21	12
San Antonio, Tex.	16	1	17	20	12

*Within city of Texarkana, Ark., the state tax on gasoline is 1c per gal. conforming with the Texas state tax. In Texarkana district outside of the city, the 4c state tax applies.

CANADA

Posted by Imperial Oil, Ltd.
(Per Imperial Gallon, which is 1.2 American Gallons)
Prices in effect Mar. 9, 1925

ONTARIO

	Gasoline T.W.	Tax	Total	S.S.	Oil T.W.
Toronto	24.5	0	24.5	28	20
Ottawa	25.5	0	25.5	29	21
Cochrane	29.5	0	29.5	33	24.5
Ft. William	27.5	0	27.5	31	22.5
MANITOBA					
Winnipeg	27.5	3	30.5	34	22.5
SASKATCHEWAN					
Regina	30.5	0	30.5	34	25.5
ALBERTA					
Edmonton	32.5	2	34.5	38	27.5
Calgary	31.5	2	33.5	37	26.5
BRITISH COLUMBIA					
Vancouver	23	3	26	30	23
QUEBEC					
Montreal	24.5	2	26.5	30	20
Quebec City	26.5	2	28.5	32	22
NEW BRUNSWICK					
St. John	27.5	0	27.5	31	23
Moncton	29.5	0	29.5	33	25
NOVA SCOTIA					
Halifax	27.5	0	27.5	31	23
Sydney	29.5	0	29.5	33	25
PRINCE EDWARD ISLAND					
Charlottetown	27.5	2	29.5	31	23

Note: In districts surrounding these points 1c additional is added to city price.

Complete Export Markets

New York **Gulf Coast** **California**

Gas—Diesel Oils Strong But Rest of New York Market Drags

NEW YORK, March 9
By Special Correspondent

GAS and Diesel oils were much stronger as the week closed. Export demand for both is better but the heavy domestic consumption is held responsible for the stiffening in prices. The Tide Water Oil Co. withdrew from the bunker, gas and Diesel oil markets last week and as a result 36-40 gas oil is not available below 6¾ cents a gallon, while 28-34 is firm at 6½ cents. Export demand for gas oil has improved a little but no bulk movements developed.

Diesel oil is now generally quoted at $2.70 a barrel, at the refinery, and the offerings at this figure are much smaller than they were a week ago. Leading refiners report difficulty in meeting standing contracts let alone taking care of fresh export buying. A rumor has been current of an impending advance but nothing definite developed. Bunker oil is flat but strong. Demand is spasmodic and light, with all refiners asking $1.80 a barrel at the refinery.

The advance in gasoline prices a week or so ago tended to check export buying and there was practically nothing doing here last week. The price of U. S. Motor in bulk at New York Harbor refineries was off ½ cent a gallon with leading factors quoting 14¾ cents but with indications that 14½ cents could easily have been done on a firm bid for a fair sized quantity.

Domestic consumption is increasing. Weather has been much better in the past few days, and jobbing demand is far better than expected. As a result refiners feel that prices will hover around present levels until the export element again enters the market. One large Independent received a cable from the Continent, stating that the European oil market is greatly depressed with prices easing off. Business conditions are reported to be the worst since Jan. 1.

The only inquiry for a cargo of gasoline reported, emanated from a French concern and called for 56,000 barrels of U. S. Motor and 64-66 gasoline. One of the big refiners was working on this deal as the week closed. Cased gasoline is fairly steady. New business reported was confined to from 500 to 1000 cases for immediate shipment to the Levant, west coast of Africa and South America.

The lubricating oil market was quiet. One of the leading Independents attributes the dearth of export orders to the fact that the large American marketing concerns abroad, in England and France, recently bought up large quantities of cylinder stocks over here and forced the domestic market up 4 to 5 cents a gallon, and are now selling the same oil abroad at from 1½ to 3 cents a gallon below the prices quoted here, thereby freezing out the smaller interests.

Leading factors are still quoting Pennsylvania 600 steam refined in barrels New York at 31 cents a gallon, but business could have been done at 30 cents, a decline of 1 cent a gallon for the week. Paraffin oils were featureless.

The fact that a large number of export men attended the convention in Kansas City was held partly responsible for the slump in export business. There was virtually nothing doing in kerosene although prices as a rule were fairly well maintained on a basis of 8½ cents a gallon for water white in tank cars delivered to the trade and 7½ cents at the refinery for export buyers. No mixed cargo sales were uncovered. Cased kerosene was steady.

Conditions in the New York market for paraffin waxes showed little change from the previous week. White crude scale 122-124 A. m.p. was still quoted at 5¼ cents a pound while 124-126 A.m.p. is held at 5⅜ cents a pound. Buying has been sluggish of late and the tendency is easy, although no important downward readjustments were recorded. Fully refined 125-127 A.m.p. is now quoted at 6⅛ cents against 6¼ cents a pound a week ago, while 128-130 A.m.p. is held at 6¼ cents, a decline of ⅛ cent from the previous week. Export buyers are purchasing very cautiously.

N. Y. Domestic Market

The following light oil, gas and fuel oil prices are F. O. B. New York refineries, being products made from Domestic (including California) and Mexican Crudes.

	Mar. 9	Mar. 2
U. S. Motor Gasoline, Tank Cars Delivered	-15¾	-16
U. S. Motor Gasoline, Tank Cars Bayonne	-14½	14¾-15
Kerosene, 45-150 W. W. Tank, Cars Del'd	-.08½	-.08½
Grade C Bunker, f.o.b. N.Y.	1.80	1.80
Diesel Oil f.o.b. Refinery	-2.70	2.52-2.70
Gas Oil, 36-40, Bulk, Refinery	-.06¾	.06¼-06¾

New York Export Market

Prices below are averages of actual sales by local exporting Agencies

LUBRICATING OILS

The following prices are cooperage basis f. o. b. New York, products being manufactured by inland refineries.

CYLINDER OILS BBLS.	Mar. 9	Mar. 2
Penna. Filtered D 600	-35	-35
Penna. Filtered E 600	34 -35	34 -35
Unfiltered 600 s. r.	30 -31	31 -32
Unfiltered 650 s. r.	36 -37	-38
600 flash s. r.	-43	-43
Western 600 s. r.	14 -15	15 -17
Bloomless 30-31 grav.	-25	-25
RED PARAFFIN (bbls.)		
300 vis. at 100°F.	24- 25	24- 25
250 vis. at 100°F.	23	23
175 vis. at 100°F.	-22½	-22½
High Viscosity Paraffin	30	30
.885 s. g. pale 100 vis. at 100°F	15 -15½	16
SPINDLE (bbls.)		
200 vis. at 100°F. Pale	22½	22½
180 Pale	20	20
150 Pale	18	18
BLACK OIL (bbls.)		
25-30 cold test	14 -15½	14 -15½
15 cold test	15 -15½	15 -15½

MEDICINAL OILS
(Cooperage Basis)
(Penna. Stocks)

Domestic.875-.885s.g.drums	1.00-1.08	1.00-1.08
Domestic.865-.870s.g.drums	75 -80	75- 80
Russian.885-.890s.g.325-330 vis. drums	1.25	1.25

WAXES
(Penna. Stocks)
(F. A. S. Carload Lots)

WHITE CRUDE SCALE	Mar. 9	Mar. 2
122-124 A. m. p.	-05¼	-05¼
124-126 A. m. p.	-05⅜	-05⅜
MATCH		
105-108 A. m. p.	05¾	05¾
111-115 A. m. p.	06	06
FULLY REFINED		
118-122 A. m. p.	06	06
123-125 A. m. p.	06	06
125-127 A. m. p.	06⅛	06¼
128-130 A. m. p.	06¼	06⅜
130-132 A. m. p.	06½	06½
133-135 A. m. p.	07¼	07½
SEMI REFINED		
122-124 A. m. p.	05½	05½
YELLOW CRUDE SCALE		
124-126 A. m. p.	05¾	05¾

PETROLATUMS
(Penna. Stocks)

Snow White	13	13
Lily White	10¾	10¾
Cream Petroleum Jelly	07½	07½
Veterinary	03¾	03¾
Light Amber	04¼	04¼
Dark Amber	03¾	03¾
Dark Green	02⅞	02⅞

New Orleans Market Also is Slow; Gas and Fuel Oil is Firm

By Special Correspondent

NEW ORLEANS, March 9

FOREIGN buyers of most petroleum products were inactive throughout the week. With major products easing off, little disposition is shown to purchase ahead. Leading Independents say most of the big European buyers are bearish and although U. S. Motor gasoline eased off ½ cent to 13¼ cents a gallon, no bulk sales were closed.

A few good sized inquiries were received from China and Japan for cased gasoline. One factor was working on an inquiry for 50,000 cases of U. S. Motor. Cased U. S. Motor is held at $2.70 a case and 64-66 gravity at $3.10. A large British concern was inquiring for a cargo of 45,000 barrels of U. S. Motor and 60-62 400 end point which was quoted in bulk at 15½ cents a gallon. For 64-66 in bulk the price was 17½ cents, also off ½ cent for the week.

Sentiment concerning the outlook is mixed, but some observers feel that prices were raised too rapidly and buyers in general also feel the same way. There is a good, steady movement on consignment and against old contracts which is keeping exporters busy and stocks from piling up.

Gas oil is a scarce and firm affair. There is practically nothing to be had in cargo lots. One of the big exporters tried to get a cargo of 26-28 gravity transparent oil, but was unsuccessful. The price asked for this oil was 6 cents while dark 32-35 was quoted at 5¾ cents with little of this to be had. The scarcity of offerings is attributed to the fact that most big refiners are holding their stocks for cracking. A German buyer was inquiring for a cargo of 28,000 barrels of transparent 26-28 but was unable to buy it.

Kerosene Prices Unchanged

Kerosene prices were unchanged. Little or no export interest was shown. Stocks abroad are moderate and a considerable amount is being shipped on contract so that distributors abroad are inclined to hold off until the heavy consuming season is over before placing orders. Prime white was quoted at 6 cents and water at 7 cents a gallon. Cased prime was $1.70 and water at $1.70 a case. South American buyers are showing interest in cased goods. An inquiry was received by one of the big Independents for 30,000 cases for April shipment, presumably to Brazil, but buyers' ideas were about ¾ cent a gallon below refiners' and the deal is still hanging fire.

Bunker oil is stronger, reflecting the advance in Mexican crude. Leading refiners are asking from $1.70 to $1.75 a barrel at this port. Export buyers are purchasing cautiously, but big domestic consumers are more anxious to contract ahead. Heavy Mexican crude oil was advanced 5 cents a barrel to $1.45 a barrel at Tampico, taxes to be added. Grade C bunker oil was unchanged at $1.65 a barrel at Tampico, taxes to be added.

Lubes Are Quiet

Lubricants were quiet. Leading marketers and exporters of zero cold test oils, say that foreign buyers are complaining about the sharpness of the recent advance and are refusing to purchase at prevailing prices. The last cargo sale was made nine days ago, according to one prominent factor. Stocks abroad are not large, but are capable of taking care of European requirements during the next few weeks, after which the need for these oils will wane.

Demand for paraffin wax was disappointing. There is a steady but light movement on old orders, but fresh buying was negligible. Prices show an easier tendency but no actual revisions were reported. Spain has been inquiring for white crude scale wax more actively but is unwilling to pay current prices.

Pacific Export Market

(Cargo lots quotations at seaboard, Los Angeles.)

	Mar. 9	Mar. 2
Gasoline, U. S. Motor—54°—56°	10½–11½	10½–11½
Gasoline—U. S. Motor blends and special cuts.	11 –12½	11 –12½
Gas Oil, 24°—30°B per bbl.	$1.85	$1.85
Diesel Oil, 27°B-plus per bbl.	$1.85	$1.85
Bunker Oil,14°—18°B per bbl.	$1.60	$1.60
Fuel Oil,14°—18°B per bbl.	$1.60	$1.60
Kerosene, W.W.40°—42° B per gal.,125-150 flash test	05 –06½	05 –06½
Cased Goods		
Gasoline, U. S. Motor	$2.70	$2.70
Kerosene, W.W.40°—42° B per case, flash test 125-150	$1.55–1.65	$1.55–1.65

N. Y. Export Quotations

Furnished by big exporting oil companies. No actual sales. Record for statistical purposes only.

Illuminating Oils
Standard Oil of New Jersey

	Mar. 9	Mar. 2
Bulk, gal., Bayonne	6.50	6.50
Barrels, gal., Bayonne, cargo	13.50	13.50
Cases, gal., Bayonne	16.90	16.90

Prices for water white oil (150 test) are 1 cent higher than those for standard white.

Gasoline-Naphtha
(Cents per Gallon)

U. S. Motor, dead bulk	16.00	16.00
U. S. Motor, cases	30.15	30.15
Export Naphtha bulk	18.75	18.75
*62-63 deg. bulk	20.00	20.00
66-68 deg. bulk	21.50	21.50

*Grade changed from 64-66 to 62-63 Jan. 9.

Tide Water Oil Company
(f. o. b. Bayonne)

58-59 deg. bulk	17.00	17.00
58-59 deg. cases	30.65	30.65
Export grade, U. S. Motor Specifications bulk	16.00	16.00
63-65 deg. bulk	20.00	20.00
68-72 deg. bulk	22.50	22.50

	Bulk	Barrels	Cases
Standard white 110	6.50	13.50	16.90
Water white 150	7.50	14.50	17.90

The Texas Company

Gasoline, cases	30.15	30.15

Kerosene	Bulk	Barrels	Cases
Standard White	6.50	13.50	16.90
Prime White	7.00	14.00	17.40
Water White	7.50	14.50	17.90

Coupon Books Return To Los Angeles

LOS ANGELES, March 6.—Just as everything seemed to be proceeding nicely in the domestic gasoline market here, the market was plunged into another uproar. Last week the major Independent marketing companies commenced issuing coupon books which are sold to motorists at 1 cent reduction per gallon. This action hits the small refiners who are now forced to pay considerably more for high grade crude oil and who have not found that the 2-cent advance in gasoline prices offsets the higher cost of their raw material. The coupon book disappeared from this market about a year ago and its return is considered something of a calamity by many marketers.

The casinghead gasoline market continues to weaken, the spot market on this product being ½ cent lower this week than last week. Other oils are unchanged.

Gulf Export Market

(Actual Sales Prices)
Gasoline

	Mar. 9	Mar. 2
U. S. Motor, Bulk	.13¼–.13½	.13¾–.14
60–62 gr. 400 e. p.	–.15½	–.15½
64-66, Bulk	.17½–17¾	.18–.18¼
U. S. Motor, Cases (cargo lots)	2.70	2.70
64-66. Cases (cargo lots).	3.10	3.00
KEROSENE		
Water White, bulk	–.07	–.07
Prime White, bulk	–.06	–.06
Water White, cases (cargo lots)	1.70	1.70
Prime White, cases (cargo lots)	1.60	1.60
GAS AND BUNKER OIL		
26-28, gravity, bulk	–06	–05½
32 plus, bulk. Dark	–05¾	–05¾
Grade C, Bunker oil	1.70–1.75	1.70–1.75
MEXICAN CRUDE AND BUNKER OILS		
*Heavy, f.o.b.Tampico, Taxes to be added	1.45	1.40
Mexican Grade C,Bunker oil F. O. B. Tampico Taxes paid	1.65	1.65
Mexican C, Bunker oil New Orleans	1.70	1.70

Lubricating Oils

SOUTH TEXAS
(Viscosity at 100°F; cold test 0)
(Tanker, F. O. B. Houston)

	Mar. 9	Mar. 2
100 Vis. No. 2 Unfilt. Pale	11	11
150 Vis. No. 2½ Unfilt. Pale	13	13
200 Vis. No. 3 Unfilt. Pale	15½	15½
300 Vis. No. 3 Unfilt. Pale	17½	17½
500 Vis. No. 3½ Unfilt. Pale	19½	19½
750 Vis. No. 4 Unfilt. Pale	24½	24½
200 Vis. No. 5½ Red Oil	14½	14½
300 Vis. No. 5½ Red Oil	16½	16½
500 Vis. No. 6 Red Oil	18½	18½
750 Vis. No. 6 Red Oil	23½	23½

*Nominal

Gasoline, Kerosene, Fuel Dull in N. Texas

WICHITA FALLS, March 7.—With most of the refiners in this area at Kansas City attending the convention of the Western Petroleum Refiners Association, there was little activity in the refined oil market during the first week of March. By being away refiners have not missed a great deal because inquiries from the jobbing trade have been few.

High gravity gasolines have been better able to hold their own in the sluggish market than U. S. Motor. Refiners still have export orders on their books which will keep them fairly busy for some time to come. For domestic 64-66, 375 end point gasoline refiners are demanding 15 to 15¼ cents per gallon. The 390 end point products is ¼ cent cheaper. There is very little 60-62 being made or inquired for.

Although there has been some talk of U. S. Motor selling at 11½ cents per gallon, the bulk of the sales appear to have been made at 11¾ to 12 cents during the past few days. One sale of 25 cars at 12 cents for delivery over March was reported yesterday. Few, if any, refiners in north Texas are now in need of shipping instructions for the time being and the market is thought by many to be about on the bottom.

Kerosene business has likewise been slack. Spot 41-43 has been sold generally at 4¾ with odd cars of untreated goods at 4⅝. Most of the kerosene which is now being shipped, was sold a week or so ago for March delivery at 5 cents and upwards. All refiners making 42-44 are well supplied with shipping instructions.

Gas oil movement this week has been normal and prices are well held at 3⅝ cents per gallon. Home heating distillates have been quiet.

Fuel oil has been softening slowly. Placing of orders by the Fort Worth & Denver City railroad for its March fuel failed to have the expected effect of bolstering up the market to any appreciable extent. At Wichita Falls fuel oil is $1.35 to $1.40 per barrel with outlying plants making sales at as low as $1.30 per barrel.

Gulf Coastal Satisfactory

HOUSTON, March 7.—Gulf Coastal lubricant prices are unchanged from last week and shipments are reported to be satisfactory. Fuel and gas oil are well sustained.

Cargoes Clearing From N. Y.

Date	Destination	Product	Quantity
Feb. 16	La Plata	Ref. Pet.	9,000 cases
Feb. 16	La Plata	Naphtha	12,000 cases
Feb. 16	La Plata	Gasoline	2,000 cases
Feb. 16	La Plata	Gasoline	10,000 cases
Feb. 16	La Plata	Kerosene	10,000 cases
Feb. 16	Rosano	Gasoline	22,500 cases
Feb. 16	Rosano	Kerosene	15,000 cases
Feb. 21	Montevideo	Naphtha	15,000 cases
Feb. 21	Montevideo	Gasoline	10,000 cases
Feb. 19	Hamburg	Refined Pet.	994,829 gals.
Feb. 19	Hamburg	Naphtha	1,279,188 gals
Feb. 26	Rio Janiero	Ref. Pet.	18,000 cases
Feb. 26	Rio Janiero	Gasoline	6,000 cases

Crude Oil Prices All Fields

EASTERN FIELDS

	1925 Mar. 9	1924 High	1924 Low	1923 High	1923 Low
Bradford Allegany	$3.85	Jan.30..$4.50	Aug.21..$2.85	Feb.15..$4.25	Nov.13..$2.60
Other Pennsylvania	3.75	Jan.30.. 4.00	Aug.5... 2.75	Feb.15.. 4.00	Nov.13.. 2.35
Cabell	2.20	Mar.10.. 2.20	Jan.1and Aug.5. 1.45	Feb.15.. 2.76	Nov.13.. 1.20
Corning	2.25	Mar.10.. 2.15	Jan.1... 1.40	Feb.15.. 2.30	Nov.14.. 1.25
Somerset	2.30	Mar.10.. 2.30	Jan.1... 1.40	Feb.15.. 2.55	Nov.13.. 1.15
Somerset Light	2.45	Mar.10.. 2.50	Jan.1... 1.55	Feb.15.. 2.80	Nov.13.. 1.30
Ragland	1.30	Mar.10.. 1.10	Jan.1... .85	Feb.15.. 1.10	July 10.. .75

Somerset oil run prior to Oct. 1, 1923, takes price of 6 cents lower than above quotations.

CENTRAL STATES FIELDS

Wooster	$2.25	Mar.8...$2.15	Jan.1,and Sept.18 $1.40	Feb.19..$2.50	Nov.9...$1.25
Lima	2.33	Mar.8... 2.28	Jan.1... 1.53	Feb.19.. 2.58	Nov.9... 1.43
Indiana	2.13	Mar.8... 2.08	Jan.1... 1.33	Feb.19.. 2.38	Nov.9... 1.23
Princeton	2.12	Mar.8... 2.07	Jan.1... 1.32	Feb.19.. 2.37	Nov.8... 1.22
Illinois	2.12	Mar.8... 2.07	Jan.1... 1.32	Feb.19.. 2.37	Nov.8... 1.22
Plymouth	1.65	Mar.8... 1.45	Jan.1... .70	Feb.19.. 1.75	Nov.9... .60
Canadian Petrolia	2.73	Mar.8... 2.68	Jan.1... 1.93	Feb.19.. 2.98	Nov.9... 1.83

MID-CONTINENT AND NORTH TEXAS FIELDS

Below 30	$1.35	Currie	$2.00
30-32.9	1.55	Mexia	2.00
33-35.9	1.80	Powell	2.00
36-38.9	2.00		
39-41.9	2.25		
42 and above	2.35		

Humble's Prices
Moran Field Texas

Below 30	$1.35	36 and above	$2.00
30-32.9	1.55	Wortham	2.00
33-35.9	1.80	Richland	2.00

Magnolia's Price Schedule
North and North-Central Texas, Okla., and Kan.

Below 28	$1.00	Corsicana, light, Powell, Mexia	$2.00
28-30.9	1.35	Corsicana, heavy	1.00
31-32.9	1.55	Thrall	1.00
33-35.9	1.80		
*36-38.9	1.95		
*39-41.9	2.10		
42 and above	2.35		

*Magnolia pays $2 and $2.25 respectively for these two grades in Okla. and Kan.

NORTH LOUISIANA—ARKANSAS FIELDS

Caddo, 38 degrees and above	$2.05	De Soto	1.90
do 35 to 37.9	1.95	Crichton	1.70
do 32 to 34.9	1.85	Bellevue	2.00
do below 32	1.70	Smackover 28 and above	1.60
Homer, 35 and above	1.80	do 27-27.9	1.55
do 33 to 34.9	1.70	do 26-26.9	1.50
do 31 to 32.9	1.60	do 25-25.9	1.40
do below 31	1.45	do below 25	1.30
Haynesville, 33 and above	1.70	Stephens 26 and above	1.60
do below 33	1.60	do below 26	1.40
El Dorado 33 and above	1.70	Cotton Valley	1.40
do below 33	1.60		
Bull Bayou, 38 and above	1.85		
do 35 to 37.9	1.70		
do 32 to 34.9	1.55		

GULF COASTAL FIELDS

	1925 Mar. 9	1924 High	1924 Low	1923 High	1923 Low
Spindletop	$2.00	Apr.1...$2.00	Jan.1 and Sept.17.....$1.25	Mar.15..$1.75	Aug.18..$1.00
Goose Creek "A"	2.00	Apr.1...$2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Goose Creek "B"	1.75	Apr.1... 1.70	Sept.17..... 1.05	Mar.15.. 1.50	Aug.18.. 1.00
Sour Lake	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Humble	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Hull "A"	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Hull "B"	1.75	Apr.1... 1.70	Jan.1 and Sept.17..... 1.00	Mar.15.. 1.30	Jan.1... .80
West Columbia	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Edgerly	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Vinton	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Jennings	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Saratoga	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25	Mar.15.. 1.75	Aug.18.. 1.00
Orange "A"	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25		
Orange "B"	1.75	Apr.1... 1.70	Jan.1 and Sept.17..... 1.00		
Pierce Junction "A"	2.00	Apr.1... 2.00	Jan.1 and Sept.17..... 1.25		
Pierce Junction "B"	1.75	Apr.1... 1.70	Jan.1 and Sept.17..... 1.00		

WYOMING FIELDS

Elk Basin	$2.00	Mar.10..$1.65	Jan.1...$ .95	Feb.17..$2.10	Nov.9...$ .95
Grass Creek	2.00	Mar.10.. 1.95	Jan.1... .95	Feb.17.. 2.10	Nov.9... .95
Big Muddy	1.60	Mar.10.. 1.50	Jan. 1... .45	Feb.17.. 1.65	Nov.9... .45
Salt Creek	1.60	Mar.10.. 1.60	Jan.1... .60	Feb.17.. 1.65	Nov.9... .60
Lance Creek	1.95	Mar.10.. 1.90	Jan.1... .90	Feb.17.. 2.10	Nov.9... .80
Rock Creek	1.70	Mar.10.. 1.70	Jan.1... .60	Feb.17.. 1.75	Nov.9... .60
Osage	1.95	Mar.10.. 1.90	Jan.1... .90	Feb.17.. 2.10	Nov.9... .80
Cat Creek, Mont	2.00	Mar.10.. 1.95	Jan.1... .95	Feb.17.. 2.10	Nov.9... .95
Sunburst, Mont	1.20	Mar.10.. 1.05	Jan.1... 70	Feb.17.. 1.50	June 6.. .70

CALIFORNIA

14-19.9	$1.25	25-25.9	$1.44	30-30.9	$1.64
20-20.9	1.27	26-26.9	1.48	31-31.9	1.68
21-21.9	1.30	27-27.9	1.52	32-32.9	1.72
22-22.9	1.33	28-28.9	1.56	33-33.9	1.76
23-23.9	1.36	29-29.9	1.60	34-34.9	1.80
24-24.9	1.40			35 and above	1.85

ROSECRANS FIELD

36-36.9 ..... $1.92

and for each increase of one full degree above 36° gravity, up to and including 41.9° gravity, 8 cents per barrel additional

42 and above $2.40

Caustic Soda Stiffening; Sulfuric Steady

NEW YORK, March 9.—Following is a review of the markets for oils and supplies used in compounding and refining:

Linseed Oil—Prices easier, in sympathy with flaxseed. Demand good. Consumption increasing under steady buying by paint and linoleum manufacturers. Boiled oil demand more active. Soya bean quiet but steady.

Animal Oils—Easier. Oleo oil tending lower. Buyers purchasing hand-to-mouth. Degras flat. Horse oil down to 9½ cents. Buyers of stearine showing little interest. Prime lard oil flat. Tallow oil dull.

Fish Oil—Refined menhaden oils up 3 cents, reflecting decreasing supplies. Offerings small. Crude menhaden steady at 55 to 60 cents, tanks, factory. Stocks light. Whale oil dull. Little interest in herring oil.

Soda **Ash**—Soda ash steady but export buying slightly lighter. Large makers making heavy shipment on contracts. Stocks on spot moderate.

Caustic Soda—Export demand much better. Supplies limited and prices stiffening. Prices tending higher as domestic buying is on increase.

Bleaching powder—Bleaching powder is firmer, but big consumers are limiting demand to nearby requirements. Stocks moderate.

Sulfuric Acid—Demand slightly better but prices unchanged. Better inquiry for forward deliveries but buying chiefly for spot requirements.

Naval **Stores**—Spirits of turpentine steady but quiet. Business light and routine. More interest in rosins. Prices slightly firmer. More interest in tar and pitch. Rosin oils marking time.

Wet Days are Forecast For Current Week

CHICAGO, March 9.—A short period of showers during the first half and another in the latter half of this week is the official forecast for the Chicago district which includes all Standard Oil Co. of Indiana territory and more. The prediction indicates that the precipitation will be heaviest in the region of the Great Lakes where it might possibly be snow. Temperatures throughout the region will be normal or above.

Even if temperatures are normal this week they might be cooler than last because since the first of this month weather has had all of the appearance of spring throughout the middle west. Showers have been so light, so brief and so infrequent as to go without mention. No zero weather has been recorded in the United States except at Houghton and Sault Ste. Marie, Mich. Last week was even better than the average of February which was nearly 5 degrees above normal.

Refiners', Compounders' Supplies

Following are the average market prices for the week on materials used by refiners and compounders f. o. b. shipping point as effective this date.

Refiners' Supplies

		Mar. 9	Mar. 2
Soda Ash light 58% bags	cwt.	–$1.38	–$1.38
Silicate of Soda 60 deg. drums	cwt.	– 1.70	– 1.70
Sal Soda wks	cwt.	1.10– 1.25	1.10– 1.25
Caustic Soda 76% solid	cwt.	– 3.10	– 3.10
Chloride of Lime works	cwt.	1.90– 2.10	1.90– 2.10
Sulphuric Acid 60 deg. tank cars f. o. b. shipping point	per ton	9.50–11.00	9.50–11.00

Compounders' Supplies (Open Market)

Vegetable Oils—			
Linseed carloads spot	gal.	– 1.16	– 1.17
March		– 1.16	– 1.17
March-April		– 1.17	– 1.18
May-August		– 1.18	– 1.19
Tanks, spot		– 1.10	– 1.11
Less carload spot	gal.	– 1.19	– 1.20
Less than 5 bbls. spot		– 1.22	– 1.23
Boiled tank spot		– 1.11	– 1.12
Boiled, carloads spot	gal.	– 1.19	– 1.20
*Soya Bean spot, tanks	lb.	– .12	– .12
Animal Oils—			
English Degras	lb.	–.04¾	–.04½
Domestic Degras, bbls., carloads	lb.	–.04¾	–.04¾
*Horse	lb.	–.09½	–.09½
Oleic Acid—			
Dist		–.11¼	–.11¼
Saponified	lb.	–.11¼	–.11¼
Lard Oils—			
Prime Winter Strained.. 1 to 1½ ffa. 40‡45c.t.	lb.	.17¾	.17⅞
Extra Winter Strained.. 2 to 4½ ffa. 40/45c.t.	lb.	.15½	.15½
Extra..... 4 to 5 ffa. 40/45c.t.	lb.	.14½	.14½
Extra No. 1. 7 to 10 ffa. 40/50c.t.	lb.	.13½	.13½
No. 1.....15 to 18 ffa. 40/45c.t.	lb.	.13	.13
No. 2.....22 to 23 ffa. 40/45c.t.	lb.	.12½	.12½
Prime Edible Tallow under 1¾ ffa. 40/45c.t. N. Y.	lb.	–.10	–.09¾
Tallow acidless	lb.	–.13¼	–.13¼
Lard Stearine	lb.	–.18	–.18
Oleo Stearine	lb.	–.11¾	–.10¾
Neatsfoot Oil—			
Pure.....bbls.	lb.	.14½	.14½
Extra.....do	lb.	.13½	.13½
No. 1.....do	lb.	.13	.13
Cold pressed	lb.	.17½	.17½
Fish Oils—			
Menhaden Oil Light pressed	gal.	–.78	–.75
White	gal.	–.83	–.81
Yellow bleached	gal.	–.80	–.78
*Herring tank cars coast	gal.	–.40	–.40
Whale, extra winter bleached	gal.	– 80	–.80
Seal	gal.		Nominal
Naval Stores—			
Turpentine, N. Y.	gal.	.93	.94
Turpentine†	gal.	.87½	.87½
Rosin, B. N. Y.	Bbl.	8.25	8.20
Rosin F. N. Y.	Bbl.	8.25	8.25
Rosin Bf†	Bbl.	6.80	6.95
Rosin Ff†	Bbl.	6.80	6.95
Rosin Oil 1st run	gal.	.48	.48
Rosin Oil 2nd run	gal.	.51	.51
Pine Tar—			
Kiln Burnt	Bbl.	13.50	13.50
Retort	Bbl.	13.50	13.50

†Savannah, Ga. market.
*Nominal.

Week's Price Changes Tank Wagon Market

Gasoline Advances

Standard of New Jersey—North Carolina points, 1 cent, covering additional 1 cent tax, March 5. Richmond, Va., advanced 1 cent, Feb. 7.

Standard of New York—Vermont points 1 cent, covering additional 1 cent tax, March 1.

Continental Oil—Wyoming points, 1½ cents, covering additional tax.

* * *

Kerosene Advances

Standard of New Jersey—North and South Carolina, 1 cent, March 7.

Refineries Operating More Efficiently

CLEVELAND, March 7.—Greater efficiency in refinery operations is indicated by a report of the Bureau of Labor Statistics on employment in 34 refineries during December, 1923, and December, 1924. In the former month 25,878 persons were on the payrolls and in the latter month 24,218, a decline of 6.4 per cent. The amount of the payroll declined from $830,886 to $771,980, or 7.1 per cent.

While statistics on the charges to stills and output of these 34 plants are not available, the average number of employees, more than 700 to each refinery, indicates that the larger plants which were operating in both months, were considered. The charges to stills for all plants reporting to the Bureau of Mines in the two Decembers increased 11.2 per cent in 1924 over the corresponding month of 1923.

Fifty-five plants reporting to the Bureau of Labor Statistics for November and December, 1924, reported a decrease in number of employees from 46,382 to 46,233, or 0.3 per cent. The payroll declined 4.4 per cent from $1,552,675 to $1,484,727.

MINNEAPOLIS, MINN.—John Hancock Oil Co., which started in business seven months ago with three service stations here, today has 21 in operation and ranks as third largest distributor in a field of some 30 competitors, according to P. C. Sanborn, secretary.

PITTSBURGH, PA.—Kenmore Oil Co. is building new stations here, and the Triangle Oil Co. is erecting a service station at Washington, Pa., according to L. L. Scott, of the American Petroleum Products Co. of this city.

AURORA, IA.—F. T. Scharff erected a bulk station last December, with 30,400 gallon capacity, and recently made his first delivery. His station is known as the Service & Quality Bulk Oil Station.

OIL STOCKS AND FINANCES

Recommends Longer Term for Gilliland Bonds

NEW YORK, March 7.—Extension of the time for payments on the bonds of the Gilliland Oil Co., and deferment of the time when the preferred stock shall become cumulative, is recommended by President P. J. Hurley in his report to stockholders for the year ended Oct. 31, 1924.

The company reports operating income of $1,314,239 for the year before depreciation and depletion. The balance sheet as of Oct. 31 shows current assets of $580,175 and current liabilities of $773,264 as compared with current assets of $1,250,258 and current liabilities of $94,942 on June 1, 1923, the date of the last previously issued balance sheet.

President Hurley in his letter to stockholders said:

"We now have under consideration a proposal to extend the time of payment on all outstanding bonds, so that the bonds will fall due in instalments over a period of eight years from April 1, 1925, instead of over a period of four years under the present provisions of the bond debenture. This last proposal has not been agreed to, but is, we believe being favorably considered by most of the bondholders. Under all these circumstances, the company has not paid and will not pay the instalments of principal due during the present six-months period, but will pay the same four years and six months hence, as provided in the notice given by the bondholders to the trustees.

"The plan of reorganization provided that the dividends on the preferred stock should become cumulative at the rate of 6 per cent per annum after Jan. 1, 1925. I believe that under the present conditions of the company it is conducive to the best interests of the preferred stockholders themselves that the period at which the dividends become cumulative should be extended to Jan. 1, 1926."

Income report for year ended Oct. 31, 1924, follows:

Operating revenues	$2,847,416
Other income	34,695
Total income	$2,882,111
Operating expenses	1,567,872
Operating income	$1,314,239

Balance sheets as of Oct. 31, 1924, and June 1, 1923, compare:

Assets	Oct. 31, '24	June 1, '23
*Property	$7,572,907	$6,910,996
Bond discount	428,389	.....
Deferred charges	10,315	12,689
Proc. from b'd issues	.....	457,595
Cash	45,416	430,837
Notes and acc'ts rec.	221,226	453,255
Deposits	.....	13,000
Inventories	36,256	53,166
Materials and Sup.	277,277	300,000
Total	$8,591,786	$8,631,538
Liabilities		
Preferred stock	$3,236,600	$3,236,600
Com. stk. and deficit	1,321,802	†314,727
Funded debt	4,587,025	4,172,000
Purch. money oblig.	78,319	113,269
Deferred liab.	460,414	400,000
Contingent liab.	777,966	.....
Notes payable	436,931	.....
Acc'ts payable	275,051	52,225
Acc. taxes and wages	61,282	42,717
Total	$8,591,786	$8,631,538

*Less depreciation and depletion.
†Surplus.

Cresent P. L. Shows Deficit for Past Year

CLEVELAND, March 6.—Report of Crescent Pipe Line Co. for 1924 shows a loss of $29,244 on the year's operations. The company has paid no dividend since the third quarter of 1923. That year it reduced its capital stock from $3,000,000 to $1,500,000 and paid out $1,500,000 as a dividend.

The company's business has been disrupted by the movement of California crude to the Atlantic seaboard by tanker. The Crescent formerly shipped a large part of the crude run by the Atlantic Refining Co. at Marcus Hook, Pa., but this business has been light since the bringing in of the big Los Angeles Basin pools in 1923.

The book value of the stock on Dec. 31 was $28.04 per $25 share as against $29.53 per share on Dec. 31, 1923. Since the dissolution the company until last year always earned a profit although it fell from $426,111 in 1912 to $44,464 in 1923.

Cleveland Stock Market

	Par	Bid	Asked	High	Low
		March 6			
Canfield Oil Co.,pfd.	$100	.....	96	100	95
Fred G. Clark Co...	10	5	6	4	2
National Refin. Co..	25	.....	41	39	33¾
do pfd.....	100	.....	.....	127¼	116
Paragon Refin. Co..	25	8½	9	6	5¼
do pfd.....	100	57½	7	75	40

x—Ex dividend

Oil Dividends

	Amount	Payable	Stock of Record
Associated q	37½c	Apr. 25	Mar. 23
British-American q	50c	Apr. 1	Mar. 17
Galena Signal q	$1	Mar. 31	Mar. 10
do new pfd q	$2	Mar. 31	Mar. 10
do old pfd. q	$2	Mar. 31	Mar. 10
Salt Creek Con. q	15c	Apr. 1	Mar. 14
Tide Water q	$1	Mar. 31	Mar. 17

Financial Notes

Union Oil Associates—This holding organization of the California shareholders of the Union Oil Co. of California has declared an 80 per cent stock dividend thus bringing its own stock into line with the amount of Union Oil Co. stock it owned. Distribution is to be made March 23 to holders of record March 2.

Oklahoma Natural Gas Co.—L. C. Ritts elected a director succeeding the late E. P. Whitcomb.

Prairie Pipe Line Co.—All directors and officers re-elected at annual meeting.

White Eagle Oil & Refining Co.—All directors and officers re-elected at annual meeting.

Condensed income accounts of the Crescent Pipe Line Co. for the last five years compare:

	1924	1923	1922	1921	1920
Net loss	$ 29,244	†$ 44,464	†$ 181,602	†$ 168,666	†$ 146,102
Dividends	.....	67,500	180,000	180,000	180,000
Deficit	$ 29,244	$ 23,036	*$ 1,602	$ 11,334	$ 33,898
Previous surplus	272,011	295,047	293,445	304,779	338,677
P. & L. adjustment	‡ 60,000	.....	.....	.....	.....
P. & L. surplus	$ 182,766	$ 272,011	$ 295,047	$ 293,445	$ 304,779

*Surplus †Income. ‡Debit.

Balance sheets of the Crescent Pipe Line Co. for the last five years compare:

	1924	1923	1922	1921	1920
			ASSETS		
Plant, less deprec.	$ 785,149	$ 809,818	$ 828,672	$ 820,636	$ 838,777
Material, supplies	9,246	10,904	10,505	10,446	19,125
Current assets	971,008	1,074,436	2,700,872	2,612,313	2,652,935
Total	$1,765,403	$1,895,158	$3,540,049	$3,443,395	$3,510,837
			LIABILITIES		
Capital stock	$1,500,000	$1,500,000	$3,000,000	$3,000,000	$3,000,000
Acc'ts, taxes payable	82,637	123,147	245,002	149,950	206,058
Surplus	182,766	272,011	295,047	293,445	304,779
Total	$1,765,403	$1,895,158	$3,540,049	$3,443,395	$3,510,837

Transactions In Oil Shares on New York Stock Exchange

1924 High	1924 Low	1925 High	1925 Low		Listed Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Mar. 7 Sales	First	High	Low	Last	Ch'ge
48	25	66¼	48	(sh)	200,000	N.P.	American Republics	.....	.....	50	56	56	56	56	0
34⅝	27½	39⅝	33	$	56,000,000	$25	Associated Oil	37½cQ	Jan. 26, 25	13,000	37⅛	37⅞	35½	36¼	— ½
140⅜	78⅛	117⅛	95½		50,000,000	100	Atlantic Refining	.....	June 16, 24	5,700	115½	116	112	112	—2¾
118	108	114¾	113½		20,000,000	100	do pfd	$1¾Q	Feb. 2, 25	200	114½	114½	114¼	114½	+ ¼
23½	14	30	21⅞		13,000,000	25	Barnsdall Corp. A	.....	Apr. 30, 21	95,900	27⅜	*30	27⅜	28½	+1⅜
17½	10	23	17⅝		3,713,270	25	do B	.....	Apr. 30, 21	6,400	20⅜	23	20⅜	22	+1
4¼	1	2¾	1⅜	(sh)	150,000	N.P.	Caddo Central O. & R	.....	.....	9,000	1¾	1¾	1⅛	1⅜	— ½
29¼	19½	32⅞	23⅞	$	17,377,000	$25	California Petroleum	43¾cQ	Dec. 1, 24	225,600	30	*32⅞	29⅛	32	+2⅝
107	92½	111⅝	100		11,955,100	100	do pfd	$1¾Q	Jan. 2, 25	7,600	108	*111⅝	107¾	111¾	+4½
40¾	22¾	35⅜	26¾	(sh)	1,257,800	N.P.	Cosden & Co	.....	Aug. 1, 23	66,800	35	35⅜	33⅛	33⅜	—1⅞
95	80	90⅜	83	$	6,998,000	$100	do pfd	$1¾Q	Dec. 1, 24	.....	.....	.....	.....	.....	.....
68⅜	31⅜	63¾	55		19,832,000	100	General Asphalt Co	.....	.....	9,000	58	58	†55	57	— ⅝
100	71½	100	95		7,416,000	100	do pfd	$1¼Q	Dec. 1, 24	100	96	96	96	96	—1
45	38⅜	57⅛	42		28,860,150	25	General Petroleum	50eQ	Dec. 15, 24	117,200	56⅛	*57⅛	54¾	56⅜	+ ⅝
82½	61	85	77		25,000,000	100	Houston Oil Co	.....	.....	10,100	81	81⅞	78¼	79⅜	—1⅞
16¼	5¾	33½	13½	(sh)	450,000	N.P.	Independent Oil & Gas	25cQ	Dec. 31, 24	257,020	29¾	*33½	29⅝	32⅞	+3⅝
7⅛	3¾	10⅜	5½	$	7,830,450	10	Indian Refining Co	.....	Dec. 15, 20	5,900	8¾	9½	8¼	8⅞	+ ⅜
75	60	95	80		2,296,400	100	do pfd	.....	Dec. 15, 21	.....	.....	.....	.....	.....	.....
1	⅛	1¼	⅜		1,649,390	$10	Kansas & Gulf Corp	.....	.....	900	⅝	⅝	½	½	0
.....	.....	23¾	16¾	(sh)	715,944	N.P.	Louisiana Oil Refining	.....	.....	26,000	21¾	22	20⅛	20¼	—1¼
37½	24⅝	35½	27¾	(sh)	324,300	N.P.	Maracaibo Oil	.....	.....	7,200	32⅜	32⅜	29¼	29¼	—1¾
42	29	46¼	28¾	(sh)	1,649,477	N.P.	Marland Oil Co	.....	July 1, 23	95,200	43	44⅛	42	42½	+ ½
190	190	225	225	$	45,942,800	$100	Mexican Petroleum Co	$3Q	Jan. 20, 25	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....		12,000,000	$100	do pfd	$2Q	Jan. 20, 25	.....	.....	.....	.....	.....	.....
25¾	14⅜	22¾	14¾	(sh)	945,989	N.P.	Mexican Seaboard Oil	.....	Nov. 15, 24	6,700	16	16¼	15½	15½	— ½
6⅞	1	1⅝	1⅛	$	29,800,220	$10	Middle States Oil Corp	.....	July 1, 23	6,400	1¼	1⅜	1¼	1¼	0
58¼	45	65¼	53¾	(sh)	3,500,000	N.P.	Pacific Oil Co	$1S.A.	Jan. 20, 25	80,200	63½	63⅝	61	61	—1⅜
65	44¼	83⅞	64	$	48,292,450	$50	Pan American P. & T	$1Q	Jan. 20, 25	57,200	80	*83⅞	80	80⅝	+1
64⅝	41¾	84½	63⅜		86,991,700	50	do Class B	$1Q	Jan. 20, 25	352,000	80¾	*84½	80½	81⅝	+1¼
4⅜	1⅜	5⅝	3	(sh)	198,770	N.P.	Panhandle P. & R	.....	.....	600	5⅜	5½	4⅞	4⅞	— ⅜
42½	29	60½	43	$	2,935,200	$100	do pfd	.....	July 2, 23	400	60	60¼	60	60	— ½
42½	28½	46⅜	36⅜	(sh)	1,849,896	N.P.	Phillips Petroleum	50eQ	Jan. 2, 25	79,900	44	44⅞	42⅝	43⅜	— ½
4½	1½	3⅝	1¾	$	29,622,925	$25	Pierce Oil Corp	.....	.....	4,600	2⅝	2⅞	2¼	2⅝	0
36	20	40	25½		15,000,000	100	do pfd	.....	Feb. 1, 22	200	34	36¼	34	36¼	—2½
5¾	4⅜	8¼	5¾	(sh)	2,500,000	N.P.	Pierce Petroleum	.....	.....	18,700	7½	7¾	7½	7½	+ ⅛
43½	22¾	32⅝	27½	$	11,467,850	50	Producers & Refiners	.....	Sept. 15, 23	3,000	29⅞	30	28	28	—1⅞
47½	42	47⅝	43½		2,845,350	50	do pfd	87½cQ	Feb. 2, 25	100	45½	45⅝	45½	45½	— ½
30¼	20	33¾	29¼		71,316,575	25	Pure Oil Co	37½cQ	Dec. 1, 24	23,300	31⅞	32	30⅛	30¼	—1¾
105¼	92	106¼	104⅜		13,000,000	100	do 8% pfd	$2Q	Jan. 2, 25	300	106	106	105⅝	106	+ ⅜
59½	40⅜	57⅜	51⅛	(sh)	728,141	13.40	Royal Dutch, N. Y. shares	$3.18½	Aug. 12, 24	25,700	55	55¾	54¼	54⅜	— ¼
42	33	45¾	41	(sh)	123,120	£2	Shell Transport & T	95c	Jan. 24, 25	500	43¼	43¼	42⅞	42⅞	— ⅛
22½	15¾	28⅜	22½	(sh)	10,000,000	N.P.	Shell Union Oil Corp	25cQ	Dec. 31, 24	38,700	26⅛	26½	25	25⅜	— ⅛
99½	91½	101½	99½	$	20,000,000	$100	do pfd	$1½Q	Feb. 15, 25	400	100½	101½	100½	100¾	— ½
24	10⅜	26¾	20¼		7,205,060	10	Simms Petroleum Co	50Q	Jan. 2, 25	34,800	22¾	24⅜	22	23	+ ⅛
27⅛	15	24⅞	17	(sh)	4,481,282	N.P.	Sinclair Consolidated	.....	May 31, 24	67,000	22¼	23	21½	22	0
90	75	94⅝	78¾	$	18,541,100	$100	do pfd	$2Q	Feb. 16, 25	1,000	89½	89½	88	88½	— ½
29	17⅝	30⅝	24⅛		25,654,000	25	Skelly Oil Co	.....	.....	38,400	28⅞	29⅝	27⅞	28¼	— ¾
68½	55½	67¼	61⅜		235,228,425	25	S. O. California	50cQ	Mar. 16, 25	20,600	63⅝	64½	62½	62⅝	—1⅛
42¼	33	47½	40¼		507,301,775	25	S. O. New Jersey	25cQ	Mar. 16, 25	49,500	44⅞	45	43⅜	43⅜	—1½
119⅜	115¾	119	116¾		199,972,900	100	do pfd	$1¾Q	Mar. 16, 25	800	117⅝	117¾	117½	117½	— ¼
8⅛	2⅜	6⅛	4¾	(sh)	1,112,268	N.P.	Superior Oil Corp	.....	Dec. 20, 20	11,200	5½	5½	† 4¾	4⅞	— ⅛
45⅜	37¾	49	42¾	$	164,450,000	$25	The Texas Co	75cQ	Dec. 31, 24	24,300	x47¼	x48	x46½	x46⅝	+ ⅜
15¼	8	23⅜	11½		8,380,340	10	Texas Pacific Coal & Oil	.....	June 30, 23	50,200	19½	22	19½	20¼	+ ⅜
151	116¼	152	130		50,004,000	100	Tide Water Oil Co	$1Q	Dec. 31, 24	1,600	149¼	149⅞	143	145½	—4½
6¼	3¾	5½	3⅞	(sh)	3,132,529	N.P.	Transcontinental Oil Co	.....	.....	29,500	4¾	5	4⅝	4¾	+ ⅛
39	35	43⅜	37¼	$	40,480,800	$25	Union Oil of California	45cQ	Feb. 10, 25	30,000	41⅞	42⅝	40¼	40¼	—1⅛
132⅞	94	128¼	118½		18,115,000	$100	Union Tank Car Co	$1¼W	Dec. 1, 24	600	124½	125	123½	123½	—1½
116¾	106¼	116⅛	113⅜		12,000,000	100	do pfd	$1¾Q	Dec. 1, 24	200	115⅜	115½	115⅜	115½	+1¼
29⅜	23⅛	31¾	28	(sh)	460,000	N.P.	White Eagle Oil & Ref	50cQ	Jan. 20, 25	3,900	29	29¼	28½	28½	— ½

*New High †New Low xEx-Dividend Total Sales 2,020,470

Standard Oil Stock Traded In New York Curb Market

1924 High	1924 Low	1925 High	1925 Low	Outstanding Capital	Par Value	Stocks	Div. Rate	Last Paid	Transactions week ended Mar. 6 Sales	First	High	Low	Last	Ch'ge
18¾	14⅛	20⅜	18	£3,000,000	£1	Anglo American	45cS.A.	Nov. 15, 24	10,000	19½	20	19¼	20	+ ¾
4⅞	2	4	2¾ (sh)	500,000	N.P.	Atlantic Lobos	.....	.....	800	3	3	2¾	2¾	— ¼
16	5	10¾	6⅞	$10,000,000	$10	do pfd	.....	.....	.....	.....	.....	.....	.....	.....
265	155	259	212¾	1,000,000	$100	Borne-Scrymser	$4S.A.	Oct. 15, 24	140	215	218	212½	212½	0
85½	51	72	62	10,000,000	50	Buckeye Pipe Line	$1Q	Dec. 15, 24	480	67	67	65½	65⅝	— ⅜
52½	47⅜	70	48½	3,000,000	25	Chesebrough Mfg. Co	62½cQ	Dec. 29, 24	.....	.....	.....	.....	.....	.....
115	112	114	114	1,000,000	100	do pfd	$1¾Q	Dec. 29, 24	.....	.....	.....	.....	.....	.....
54⅞	39¾	.....	.....	10,000,000	25	Continental Oil	50cQ	Dec. 15, 24	.....	.....	.....	.....	.....	.....
.....	.....	31⅛	25½	.....	$10	Continental New V. T. C	25cQ	Mar. 16, 25	87,700	27⅞	29⅝	27⅞	28⅜	+1⅜
20	11¼	15⅜	14	1,500,000	25	Crescent Pipe Line	.....	Sept. 15, 23	.....	.....	.....	.....	.....	.....
149	110¾	150	132½	3,000,000	100	Cumberland Pipe Line	$3Q	Mar. 16, 25	50	133	133½	132½	132½	0
105	74	96	83	5,000,000	100	Eureka Pipe Line	$1Q	Feb. 2, 25	80	84	84	84	84	0
69¾	52	65	56¾	16,000,000	100	Galena Signal Oil	$1Q	Dec. 31, 24	300	63⅜	63⅜	63	63	+ ½
118	100½	105	102	4,000,000	100	do new pfd	$2Q	Dec. 31, 24	70	104	104	102	102	—3
116	110	.....	.....	2,000,000	100	do old pfd	$2Q	Dec. 31, 24	60	110	110	110	110	—1
48¾	34½	47¾	42½	43,750,000	25	Humble Oil & Ref	30eQ	Jan. 1, 25	10,200	46	47⅜	45⅞	46	0
161	120	154½	127	20,000,000	100	Illinois Pipe Line	$6S.A.	Dec. 30, 24	670	147½	148	146	147½	— ½
119	98½	134¾	119½	39,222,750	25	Imperial Oil Coupons	75cQ	Dec. 1, 24	.....	.....	.....	.....	.....	.....
.....	.....	34⅛	30⅛	.....	$25	Imperial New w. i	25c	Mar. 1, 25	15,300	31	31¾	30½	30¾	+ ⅜
100	66	84	73	5,000,000	50	Indiana Pipe Line	$1Q	Feb. 14, 25	210	78	79¼	77	77	—2½
24¾	16¾	28¾	23 (sh)	7,118,138	N.P.	International Petroleum	25c	Nov. 29, 24	45,300	26¾	28	26¼	26⅞	+ ⅜
162	122	159	137 $	188,000,000	100	Magnolia Petroleum	$1Q	Jan. 5, 25	530	146	146	143⅛	143⅛	—1⅜
25⅜	20⅜	25½	23	6,362,500	12½	National Transit	50cQ	Mar. 16, 25	500	23	23½	23	23¼	+ ¼
97	54½	79	65½	5,000,000	100	New York Transit	50cQ	Jan. 15, 25	50	73	73	72	72	—2
107½	72	88	81⅛	4,000,000	100	Northern Pipe Line	$3S.A.	Jan. 1, 25	150	84½	85	84½	85	+ ½
79½	55	75	64	60,000,000	25	Ohio Oil Co	50cQ	Dec. 31, 24	3,900	71¾	73¾	71	71¾	+1¼
43	27	44½	35¾	10,000,000	25	Penn.-Mex. Fuel	.....	.....	1,600	43	*44½	41	41	— ½
269	193	259½	209	60,000,000	100	Prairie Oil & Gas	$2Q	Jan. 31, 25	.....	.....	.....	.....	.....	.....
54¾	49½	65½	52¾	.....	$25	Prairie O. & G. New w. i	.....	.....	13,200	59¾	61⅞	59½	60¼	+ ¾
111	100	126	106	81,000,000	100	Prairie Pipe Line	$2Q	Jan. 31, 25	3,000	121¾	122	120½	121¾	+ ¼
280	175	259	200	4,000,000	100	Solar Refining Co	$5S.A.	Dec. 20, 24	90	238	238	232	234	—1
100	80½	103	84	10,000,000	100	Southern Pipe Line Co	$1Q	Mar. 1, 25	290	84	87	84	85	+1
171	117	197	139	20,000,000	100	South Penn Oil Co	.....	Sept. 30, 22	1,510	179	188	178	185½	+6½
89	68	84	73	3,500,000	100	Southwest Pa. Pipe Lines	$1Q	Dec. 31, 24	40	74½	75	73	73	—3
68⅜	54¼	70	62⅛	221,706,668	25	S. O. Indiana	62½cQ	Mar. 16, 25	74,500	65⅞	67½	65⅝	66¾	+1
50¼	32½	46	37	8,000,000	25	S. O. Kansas	.....	June 16, 24	3,400	40½	42⅛	40½	41	+ ¾
121¾	101	124¾	117	16,784,047	25	S. O. Kentucky	$1Q	Dec. 31, 24	1,700	118½	120	118½	119	+ ¾
262	198	270	244	3,000,000	100	S. O. Nebraska	$5S.A.	Dec. 20, 24	290	260	263	260	261	+2
48	37¾	48⅝	44¼	225,324,650	25	S. O. New York	35cQ	Mar. 16, 25	18,900	45¼	46⅝	45	46⅛	+ ⅜
377½	275	369	338	14,000,000	100	S. O. Ohio	$2½Q	Jan. 1, 25	130	350	354	350	352	+2
336	115	120	117½	7,000,000	100	do pfd	$1¾Q	Dec. 1, 24	.....	.....	.....	.....	.....	.....
81	20	27	22	1,722,931	25	Swan & Finch	.....	Nov. 1, 19	200	24	24½	23½	23½	—1
88⅛	56½	96¼	80⅛	61,523,075	25	Vacuum Oil Co	50cQ	Dec. 20, 24	16,800	90	94¼	90	93⅛	+3⅛
30	25	30½	30	100,000	10	Washington Oil Co	.....	Jan. 31, 22	.....	.....	.....	.....	.....	.....

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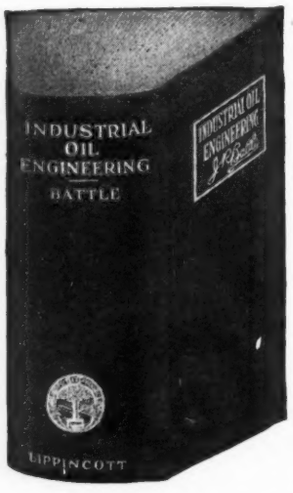

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New York Curb Bonds

Week Ended March 7

	High	Low	Last	Ch'ge
Anglo-Amer. 7½s	100⅜	100⅛	100⅛	0
Cities Serv. 7s B	175¼	175	175	—2
do 7s C	123⅝	122½	122½	—1
do 7s D	104	102½	103	— ½
do 8s E	112	111½	111½	—1
Galena S. O. 7s	105¼	105⅛	105⅛	— ⅛
Gen. Pet. 6s	101¾	101⅝	101⅝	0
Gulf Oil 5s	99½	98¾	98¾	— ½
Pennok Oil 6s	99⅜	99¼	99⅜	+ ¼
Pure Oil 6½s	101⅜	100⅞	101	0
S. O. N. Y. 6½s	107⅜	107	107⅜	0
Sun Oil 5½s	97	96½	97	+ ½
Union Oil Calif. 6s '26	100⅞	100½	100¾	— ⅛
Union Oil Calif. 5s	96⅜	96	96	0
Vacuum Oil 7s	107¼	106⅞	106⅞	0

New York Bonds

Week Ended March 7

	High	Low	Last	Ch'ge
Atlantic Refg. debs 5..	99⅝	99¼	99¼	— ⅜
Barnsdall Corp. 8s	105	104¾	104¾	0
Calif. Petrol. sf 6½s	103½	102¾	103¼	+ ¼
Empire Gas & Fuel 7½s	103⅝	102¼	103	0
Humbel O. & R. 5½s	101	100½	101	+ ½
Marland 8s ser A	105⅜	105⅜	105⅜	— ¼
do 8 w w	126	126	126	0
Pan Amer. Pet. & Trans. 6s	118⅞	115¼	115¾	+ ¾
do 7s	106	105⅝	105¾	+ ⅛
Pierce Oil debs 8s	104	104	104	0
Prod. & Ref. 8s	111	110	110⅞	+ ⅞
Sinclair Con col. 7s	93⅞	93	93¾	0
do 6s	115½	114	114¼	+ ¼
do 6½s	89	88½	88¾	0
Sinclair Crude 6s	100¼	99⅞	99⅞	— ⅛
Sinclair P.L.sf 5s	85¼	85	85¼	— ⅛
Skelly Oil 6½s	118¾	115¾	115¾	—1½
Tidewater Oil 6½s	104	103½	104	+ ½
Union Oil of Calif. 6s	103¾	103¼	103	+ ¼
do 5s	100¼	100	100	— ¼
Union Tank Car 7s	104¾	104⅝	104¾	+ ⅛

New York Curb Market

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions week ended Mar. 6 Sales	First	High	Low	Last	Ch'ge
.....	.....	4	2¾	....	Amer. Maracaibo	1,800	3⅝	3¾	3½	3½	0
7	4	8⅜	5½	10	Ark.Nat.Gas	100	7	7	7	7	— ¼
1⅜	.75	.....	.....	1	Boston & Wyo	.....	.....	.....	.....	.....	.....
6⅜	2¾	4⅛	3⅜	25c	Carib.Synd	900	3⅝	3¾	3⅝	3⅝	0
190	132	212	176½	100	Cities Service	2,650	203	207	201	202	—2
82⅞	67¾	82¼	80¼	100	do pfd	1,000	81⅞	82¼	81⅞	82¼	0
7¾	6⅜	7¾	7⅜	10	do pfd. B	.....	.....	.....	.....	.....	.....
19	13¼	21⅜	17⅜	10	do Bkrs. Sn	2,700	20¼	20½	20	20	— ¼
10⅝	2¼	11⅞	8¼	N.P.	Creole Synd	37,200	10⅛	*11⅞	10⅛	11⅞	+1⅝
8	1½	7	4½	N.P.	Derby Oil & Ref	1,300	6	* 7	6	6	0
34¼	17⅝	27	25	N.P.	do pfd	700	25⅛	*27	25⅛	27	+2
.60	.12	.25	.20	5	Federal Oil	2,000	.25	*.25	.25	.25	+3
.60	.15	.27	.20	10	Glenrock	1,000	.22	.22	.22	.22	—3
67¾	56	71	65⅛	25	Gulf Oil Corp	9,200	68	68¾	66½	67¼	+ ¾
7	1⅛	5⅞	2¾	N.P.	Kirby Petroleum	4,300	4⅜	4⅜	3⅜	3½	— ¾
6¾	2⅜	6¼	5	N.P.	Lago Petroleum	51,300	5¼	5⅞	5¼	5¾	+ ½
4⅞	1½	4¼	1¾	N.P.	Marland of Mexico	200	3⅜	3⅜	3⅜	3⅜	— ⅛
20¾	16	20¾	18¾	10	Mountain Prod	24,300	19½	21	19½	20¾	+1⅛
14	9½	14⅝	11⅞	5	Mutual Oil ctfs	.....	.....	.....	.....	.....	.....
6¼	3½	5	3⅝	5	New Bradford Oil	2,100	4⅞	5	4⅞	4⅞	0
44	17	24¾	19⅝	10	New England Fuel	100	18	18	18	18	—1⅝
14	8⅛	10	8¼	25	New York Oil	600	9¾	*10	9¾	10	+1
33⅛	29⅜	33¾	31⅝	25	Ohio Fuel Corp	.....	.....	.....	.....	.....	.....
.80	.50	.....	.....	10	Omar O. & G	.....	.....	.....	.....	.....	.....
6	.70	1¾	1	N.P.	Peer Oil Corp	5,400	1⅜	1¼	1	1	— ⅛
18¼	12¼	25	16	10	Pennok Oil	1,700	23⅞	24	23¾	24	0
57¾	53¼	82½	22½	25	Red Bank Oil	300	24⅝	24⅝	24	24	—1
5½	3	7	3½	N.P.	Ryan Consolidated	14,200	5	* 7	5	7	+1½
10¼	6	8¼	6½	10	Salt Creek Cons	6,700	7	* 8¼	7	8⅛	+ ¾
27½	19⅝	26½	24	10	Salt Creek Prod	19,400	24½	*26½	24½	26¼	+1¾
2½	.80	2	1⅞	5	Sapulpa Refining	100	2	2	2	2	.....
1½	.30	.....	.....	5	Seaboard O. & G	.....	.....	.....	.....	.....	.....
16¼	6¼	13¾	10	10	Tidal Osage	200	11⅛	11⅞	11⅛	11⅛	+ ⅛
4⅛	2⅝	4⅜	3⅜	....	Venezuelan Pet	12,600	3½	* 4⅜	3⅜	4⅜	+1
8½	4⅝	7¾	5¾	5	Wilcox Oil & Gas	15,000	6½	7	6½	6½	0
13⅞	4¼	7	5	N.P.	Woodley Petroleum	3,500	6¼	* 7	6⅛	6⅛	+ ⅛

Pittsburgh Stock Exchange

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions Week Ended Mar. 6 Sales	First	High	Low	Last	Ch'ge
7	4	8⅛	5⅜	$10	Arkansas Nat. Gas	1,015	7	7	6⅝	7	0
40½	35⅜	.....	.....	N.P.	Columbia Gas	.....	.....	.....	.....	.....	.....
.....	.....	107	105¾	$100	Duquesne Lt.7s pfd.	335	106⅜	106½	106	106½	+ ½
30	30	.....	.....	25	Fayette County Gas	.....	.....	.....	.....	.....	.....
33½	26½	40	32¼	25	Lone Star Gas	2,932	39	39¼	39	39¼	+ ¼
33¼	28½	34½	32	25	Ohio Fuel Corp	2,206	33¾	34	33¾	33⅞	+ ⅛
16½	11⅛	16¾	13⅝	1	Ohio Fuel Oil	1,561	15½	*16¼	15½	15¾	+ ¼
28½	22⅜	31½	26	25	Oklahoma Nat. Gas	377	29¾	30	29½	30	+ ¼
9¼	6	8¾	7⅝	5	Pittsburgh O. & G	2,495	8¼	8½	8	8¼	+ ¼
10½	6	8½	6¼	10	Salt Creek Cons	2,062	7¼	8⅛	7⅛	8	+ ¾
16½	8	13⅜	8¼	10	Tidal Osage	.....	.....	.....	.....	.....	.....
92	92	.....	.....	100	do pfd	.....	.....	.....	.....	.....	.....

Pittsburgh Curb Market

1924 High	1924 Low	1925 High	1925 Low	Par Value	Stocks	Transactions Week Ended Mar. 6 Sales	First	High	Low	Last	Ch'ge
2½	2¼	.....	.....	N.P.	Arkansas Fuel	.....	.....	.....	.....	.....	.....
1	.20	1½	.60	$5	Colombia Synd	.....	.....	.....	.....	.....	.....
.70	.25	.60	.15	5	Duquesne Oil	.....	.....	.....	.....	.....	.....
9½	5½	9	7	10	Forest Oil	.....	.....	.....	.....	.....	.....
66¾	57	70	66½	25	Gulf Oil Corp	.....	.....	.....	.....	.....	.....
23¾	21	.....	.....	N.P.	International Pet	.....	.....	.....	.....	.....	.....
4½	4½	.....	.....	N.P.	Lago Petroleum	.....	.....	.....	.....	.....	.....
6	5	.....	.....	$10	Marshall Oil	.....	.....	.....	.....	.....	.....
2⅞	1½	2¾	2⅛	1	Oklahoma Eastern	1,500	2⅝	2¾	2⅝	2¾	+ ⅛
.....	.....	.....	.....	1	do ex rights	1,090	1⅞	1⅞	1⅞	1⅞	0
.....	.....	.....	.....	....	do rights	100	¾	¾	¾	¾	0
.77	.35	.40	.40	10	Omar O. & G	.....	.....	.....	.....	.....	.....
8	3⅜	7	3	5	States Oil	.....	.....	.....	.....	.....	.....
14	10	11	9	10	TidalOsagenon-vot'g	.....	.....	.....	.....	.....	.....

*New High †New Low x Ex Dividend